

JUL 18 1941

# VACATION HOUSES SERVICES FOR SALE



**ARCHITECTURAL**

JULY 1941

**Fluorescent  
at its  
VERSATILE  
BEST!**



R. E. Funsten Co., St. Louis...Gale E. Henderson, St. Louis, Architect

## Use These TROFFERS as *Units of Architectural Design*

Entirely beyond their recognized superiority as illumination units, Day-Brite Troffers greatly extend the architect's creative range! Use them as units of architectural design—their versatility is practically unlimited!

Consider the possibilities inherent in these specifications:

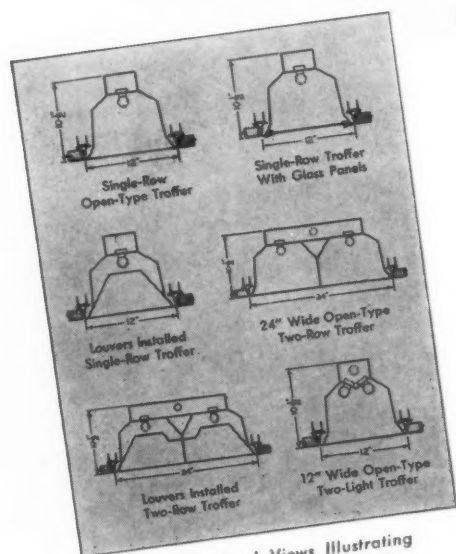
- (1) Lengths—24", 36", 48", 60" . . . (2) Widths—12" and 24" . . . (3) Lamps—20, 30, 40, 60, 65 and 100 watt . . .
- (4) Open illumination, louvered or glass-panel enclosed . . . (5) 12" width—one and two rows of lamps; 24" width—two rows of lamps . . . (6) Easily adaptable to continuous runs . . . (7) Usable as "fill-in" units.

Certainly, here is architectural design opportunity that makes it quite worthwhile to send for complete file information! WRITE FOR BULLETIN F-47.

**SPECIAL NOTE!** *We invite consultation on your special problems in harmonizing fixture design—a Day-Brite service particularly valuable to Architects.*

**DAY-BRITE LIGHTING, INC.**  
5486 BULWER AVE. • • • ST. LOUIS, MO.

Manufacturers of The Complete Line of  
**FLUORESCENT LIGHTING FIXTURES**



Cross-Sectional Views Illustrating Several Day-Brite Troffer Unit Constructions. Send for Bulletin F-47.

**3 Services for  
Architects**  
**Day Brite**

**1. ENGINEERING LAYOUTS 2. DESIGN APPEAL 3. COMPLETE LIGHTING**



## BEHIND THE RECORD

**Small house architects** have long railed—with justification—against the sale of house plans by “home-building” magazines and even by some of the more-or-less fiction publications. They know from experience what the house-plan-buyer doesn’t—that the “complete working plans and specifications” so glibly offered by editors do not insure the buyer against jerry-building, inconvenience and costly mistakes. So every architect with a residential practice ought to cheer the editorial policy of *The American Home* that was so clearly and firmly stated in its June issue. In an article on page 66 headed “Why we do NOT sell house plans” the editors say in part:

We do not sell house plans, specifications, or lists of materials. To be blunt about it, we don't think we ought to. We think the building business is one job and getting out a magazine is another. We can't do both these things and do them well, and we don't believe that anybody else can.

We don't think this is any lack of service on our part, either. We think it is the soundest kind of service to refer you specifically to the architect who did the original house instead of selling you the kind of general plans and vague, elastic, general specifications and materials which can be got out for a few dollars.

If the architect can sell you the exact working drawings, he will probably be glad to do so. But please remember that he is also a man in business, a man who has the right to charge for his services. You wouldn't read in a magazine of a doctor's successful diagnosis or a lawyer's brilliant handling of a case and then write to him asking him to send you his detailed formulas or procedures free of charge or for a few dollars. You know a doctor or a lawyer must see his client, study the case, prescribe for the individual, and charge accordingly. Well, the architect is a professional man, too, with technical skill and training worth reasonable payment.

And that, we maintain, makes good sense. As an editorial statement it shows an experienced understanding of building procedure and a sincere resolve on the part of *The American Home* to avoid selling the gullible home-seeker down the river of cheap stock plans.

\* \* \*

**A vigorous comment** on the current defense housing situation came to us recently from *Robert Tappan*, architect of Forest Hills, Long Island, who is now acting as an independent housing consultant in Washington, D. C. To show what he means by “sound, truly low-cost houses” he submits the accompanying sketch of a small house, a model of which is to be set up in a Washington department store for sale, with rugs, furniture, draperies and dishes—all for close to \$1,000. (See page 10.)

There is no Department in Washington geared to function on emergency housing. They are all equipped to handle “Buicks” and the situation cries for “Fords.” Small houses are produced by small builders all over. They are everybody's business, and what is everybody's business is apt to be nobody's. Numbered in the thousands, these little fellows, aided and abetted by the ubiquitous retail building material dealer, are entrusted with the local production of a prime necessity of life, viz., houses—homes for Americans to live in.

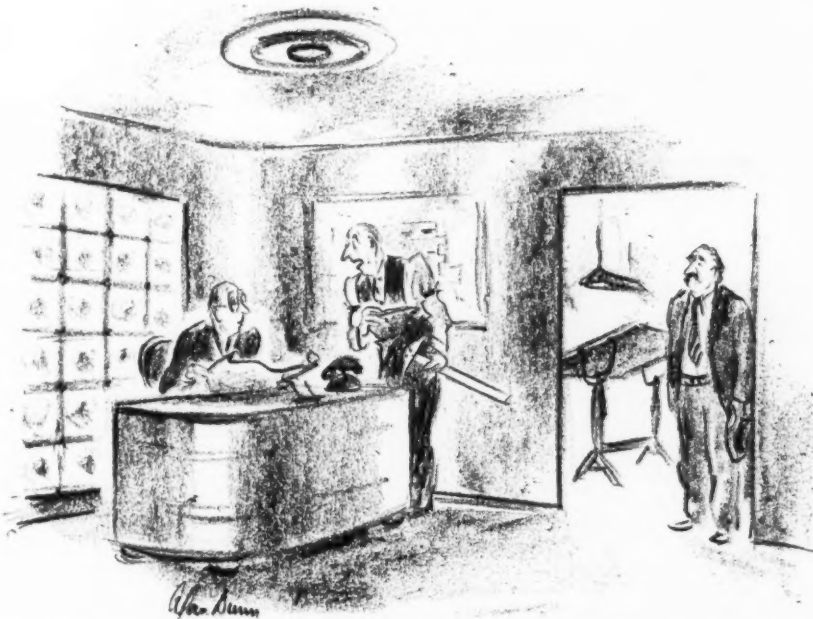
Now, all of a sudden, it is necessary to create over night almost 200,000 modern, sanitary livable shelters. What to do? The old “normal” rules don't hold for emergencies. As long as the innocent home buyer is content to fall for 300 per cent

mark-ups on housing gadgets and as long as he is willing to pay for wasteful handicraft construction processes, why worry? But, in an emergency we suddenly discover that the building industry, which is quite capable of throwing up a 20 million dollar factory building in the dead of winter, in 5½ months, requires about 5½ years to get homes built for its workers at prices which the worker cannot afford to pay at that.

Never in construction history have there been so many different materials and gadgets to choose from. These products, excellent in themselves, are manufactured efficiently and economically enough. But, before they reach the local dealer's yard, store house, or shelves, all of the scientific production economies are nullified by the cost or price of retail distribution mark-ups. What value modern production science if the house buyer cannot benefit? A different system of house building might be able to carry on these production economies to the ultimate consumer by bypassing mark-ups.

Here in Washington there may be scores of experienced technicians who know how to design and specify the materials for sound, truly low-cost houses, but the policy makers won't let them. Their standards are “normal” for handicraft, retail, local production. The rules are so written that industrial, wholesale efficiency cannot function as it does on a modern factory or

(Continued on page 10)



"It's Tony—your old bootlegger of Prohibition days. He wants to know if we'd like some aluminum casements."  
—Drawn for the RECORD by Alan Dunn



# Are Sloan

## Take INSURANCE

Insurance companies are justifiably famed for their buying judgment. They know their investments. They have to, because their entire existence is predicated on a knowledge of product quality. This being true, it seems to us significant that in their own buildings the majority of insurance companies insist upon Sloan Flush Valves. Pictured here are the home offices of only five of the many companies who know Sloan Valves to be unequalled in quality.

**No. 1** is BANKERS LIFE OF DES MOINES

**No. 2** is AETNA OF HARTFORD

**No. 3** is PROVIDENT MUTUAL OF PHILADELPHIA

**No. 4** is METROPOLITAN LIFE OF NEW YORK

**No. 5** is COLUMBIAN MUTUAL OF MEMPHIS

*A few of the many insurance companies who invest in Sloan quality are:*

PRUDENTIAL INSURANCE COMPANY, Newark, N. J.  
EQUITABLE LIFE ASSURANCE SOCIETY OF THE U. S.  
New York City

TRAVELLERS INSURANCE COMPANY, Hartford, Conn.  
JOHN HANCOCK MUTUAL LIFE INSURANCE COMPANY  
Boston, Mass.

NORTHWESTERN MUTUAL LIFE INSURANCE COMPANY  
Milwaukee, Wisconsin

MUTUAL BENEFIT LIFE INSURANCE COMPANY  
Newark, N. J.

PENN MUTUAL LIFE INSURANCE COMPANY  
Philadelphia, Pa.

MASSACHUSETTS MUTUAL LIFE INSURANCE COMPANY  
Springfield, Mass.

NEW ENGLAND MUTUAL LIFE INSURANCE COMPANY  
Boston, Mass.

ROYAL INSURANCE COMPANY, New York City

AETNA LIFE INSURANCE COMPANY, New York City

NATIONAL FIRE INSURANCE COMPANY, Hartford, Conn.

CONNECTICUT MUTUAL LIFE INSURANCE CO.  
Hartford, Conn.

NATIONAL LIFE AND ACCIDENT INSURANCE CO.  
Nashville, Tenn.

INSURANCE CO. OF NO. AMERICA, New York City, N. Y.

HOME INSURANCE CO. OF N. Y., New York City, N. Y.



The unquestioned quality and enduring satisfaction of Sloan Flush Valves can be verified by you in *your* locality. Installations ten, fifteen, twenty and even twenty-five years old are common to every section of the country and to every type of building. As for low maintenance cost—that's a matter of repeated record. Ask the owner or manager of *any* Sloan-equipped building. You will find Sloan Flush Valves cost but  $\frac{1}{2}$  to  $1\frac{1}{2}$  cents per valve per year to maintain. Indeed, installations which have been in service for years without being touched are constantly reported. And Sloan Flush Valves save water *all* the time because their adjustment is permanent, assuring a uniform flush at every operation. Sloan originated and developed the "can't-be-held-open" feature which limits the flow to one complete flush regardless of whether the handle is held or released.

# SLOAN



# Valves as Good as We Say?

## COMPANIES FOR EXAMPLE



### More SLOAN Flush Valves Are Sold Than All Other Makes Combined

It's easy to have security and silence when you specify SLOAN. No Sloan Flush Valve can cause water contamination through back-syphonage when it is equipped with the Sloan Vacuum Breaker—the *first* preventive to be approved by the authoritative National Plumbing Laboratory. (In many localities vacuum breakers are required by law. Naturally, Sloan is approved everywhere by all testing and regulatory bodies.)

And flush valves can be *whisper-quiet*, inaudible through closed doors, if they are Sloan *Quiet-Flush*. You can enjoy these two added benefits at a cost so slight that the economies of Sloan operation will soon repay the original cost.

### It Costs No More to Have the Best

The perfection of fine workmanship, the unceasing research for improvement, and the advanced engineering of the world's outstanding flush valve organization are yours at no extra cost. The economies of large production make possible the popularity and perfection of Sloan Valves. You pay no premium for premium quality when you insist on SLOAN.

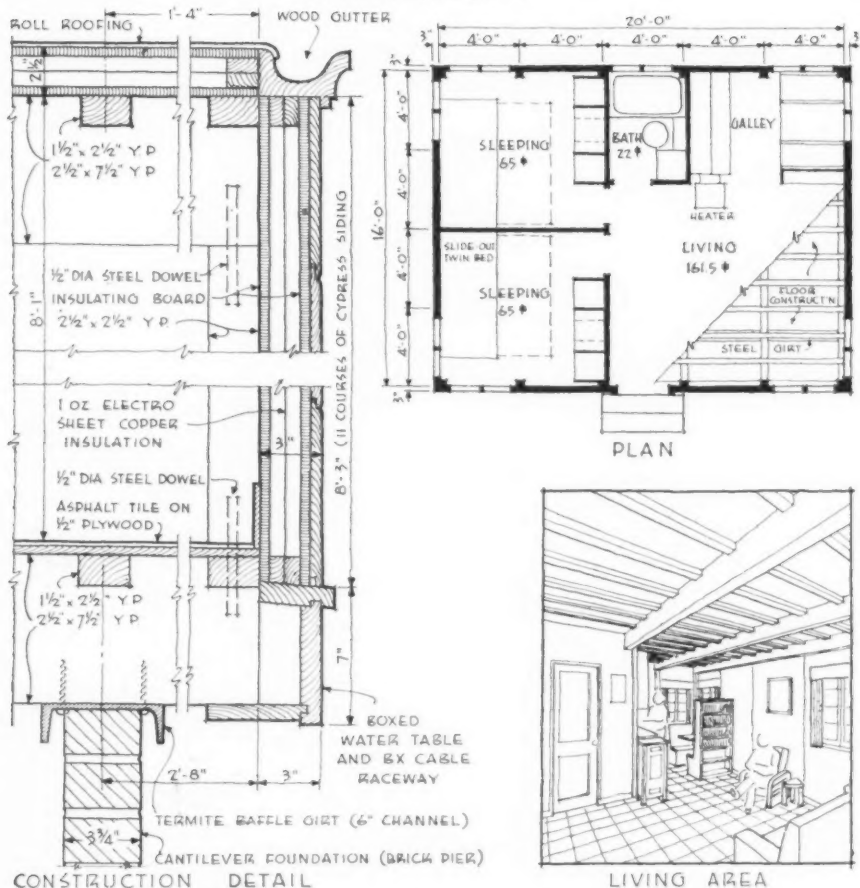
*Plan with us now for future needs. Catalogs, literature, piping tables, skilled engineering assistance are at your service without obligation. Call our nearest representative or write us now.*

**SLOAN VALVE COMPANY • 4300 WEST LAKE STREET • CHICAGO**

**N** *Quiet Flush* **VALVES**

## BEHIND THE RECORD

(Continued from page 7)



Tappan's "demountable house" in the smallest recommended size. It provides, the designer says, comfortable quarters for four with full modern housekeeping facilities

office building. Every labor leader knows poor housing conditions are his best bet...

I believe that we must change the rules.

Stop applying \$10,000 house standards to defense housing problems. Instead of giving an inch here and making a conces-

sion there, throw the rule books out of the window and start from the bottom.

Design a good brooder house or two-car garage or tool shed. Then keep adding a few simple refinements until it is fit for human occupancy. You would be surprised what this approach will do to costs. It's all in the point of view! Stop being Bourbons. If the workers ask simply for bread, for heaven's sake, try to give them bread, not cake.

Honestly, I ask you, isn't the present wholesale purchasing of trailers by the Government an admission of something?"

\* \* \*

Lovers of fine woodwork will be interested in the following note from Mrs. Paul F. Grote whose architectural training at the University of Illinois is probably responsible for her own recognition of what is today a rare find.

Some acquaintances have some very old walnut counters from an old store operated by members of their family for more than half a century. These counters, which they wish to sell in settling their father's estate, have tops of one piece of walnut, being 8 to 10 ft. long, 20 to 24 in. in width, and 1 1/2 to 2 in. in thickness. The walnut is highly polished from years of use and is very attractive.

They have been trying to sell these counters for something other than just lumber, for it would be a shame to have such rare planks sawed up into just gunstocks. Anyone who is interested sufficiently may inquire of Miss Marion Dennis, Chambersburg, Illinois.

\* \* \*

Credit should have been given to Julius Shulman for the photographs appearing on pages 57 and 59 of the June issue, and to D. R. Merrill for the photograph on page 58.

Help yourself to

# LEAK INSURANCE FACTS

Here's the story on how to insure buildings against leaks . . . easily, quickly, economically. This new A.I.A. Folder explains the "What, How, Where" of WASCO Flashing—with diagrams and complete specifications.

Get posted on WASCO! It's the only flashing that combines in one material the permanency of copper with the flexibility and bonding qualities of rough-textured fabric—all at low cost.

## WASCO

COPPER-FABRIC FLASHING

WASCO FLASHING COMPANY · Cambridge, Mass.



This is one of a series of advertisements telling what leading Consulting Engineers think of modern steam heating.

Clyde R. Place, Consulting Engineer. Member of American Society of Heating and Ventilating Engineers; Board of Governors, New York Building Congress. S. B., Mechanical Engineering, Massachusetts Institute of Technology.



"An ideal heating system is one that insures comfortable occupancy at all times, no cold or hot 70°", writes Clyde R. Place. "This means a heat source that is in continuous operation and whose heating output is varied with external temperatures and wind conditions. The modern type of steam heating system, with an effective control, fully accomplishes this result. I have found comfortable occupancy to exist in all the latest buildings in which my design of steam heating with its control has been installed."

Clyde R. Place has specified "Controlled-by-the-Weather" Webster Moderator Systems of Steam Heating for several outstanding structures, one of the most recent being the modern office building for Aetna Casualty & Surety Company at 51 William Street, New York. Completed in 1940 and operated through the winter of 1940-41, this installation has demonstrated how splendidly modern steam heating operates in coordination with central winter air conditioning.

WARREN WEBSTER & COMPANY, Camden, New Jersey  
Pioneers of Vacuum System of Steam Heating  
Est. 1888 : : Representatives in 65 U. S. Cities

**STEAM** Heats  
America . . . .

©1940

## WITH RECORD READERS



From preliminary sketches to interior finishing this residence—near New York City—served as the “clinical case” for a group of 2nd-year architectural students at Pratt Institute, and the architect for the house, Simon Breines, served as teacher of the group

### UNDERGRADUATE STUDENTS AT PRATT NOW LEARN BY “CLINICAL METHOD”; FOLLOW REAL JOB TO COMPLETION UNDER GUIDANCE OF PRACTICING ARCHITECT

ON EXHIBIT last month at Pratt Institute's Department of Architecture, in Brooklyn, N. Y., were the results of an interesting educational development—the extension to undergraduate students of the “clinical method” developed at Pratt. Some time ago, the Department of Architecture instituted an “Architectural Clinic” in a three-pronged effort to (1) serve the public's need for expert guidance on projects which are too small to merit full-time professional service; (2) provide supervised experience for graduate (but not licensed) architects; and (3) familiarize the public with the advantages of professional architectural services on even small jobs. In the first two points, this technique corresponds closely to the interne's post-graduate work in hospitals.

The “clinic” proved so successful in the opinion of the Department's head, C. C. Briggs, that a variation of it was extended this year to undergraduate work. “The procedure in connection with one of these Clini-

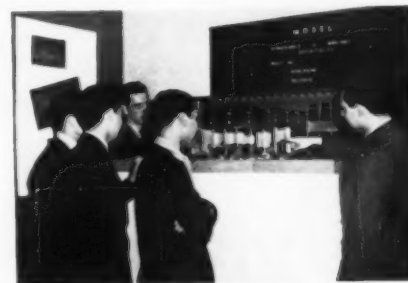
cal Design Problems is that a practicing architect, at the beginning of an actual job in his office, takes charge of a group of students who follow every step throughout the entire project. They participate from the time the property is surveyed until the interiors are finished and landscaping is completed. This way they are able to observe at first hand the complete building operation—making the progress photos, records of details, notes, etc. They meet clients and assist in making drawings and in writing specifications. In regular classes, they are at the same time required to complete a similar project, incorporating (if they choose) variations from the actual example.”

#### Class should be small

According to the collaborating architect, Simon Breines of the New York firm of Pomerance and Breines, whose project in nearby Briarcliff Manor, N. Y. (see picture above) was the subject of the experiment,\* “There are several conditions to the



General view of the exhibit: Each student was required to submit furniture layouts with color and texture schemes



Part of the class studies the large scale model of the project, which is structurally accurate and built by them as part of the course. Other features of exhibit were preliminary sketches, working drawings, progress photos by architect and students

success of this teaching method. The class in question should not be larger than about a dozen students; less would be preferable. The students should be in their third year at least, and the nature of the project should be suited to their capacities. The architect should be able to devote at least six hours a week, regularly scheduled, to the class; and his office—as well as the building project itself—should be reasonably accessible to the school.”

Both Mr. Breines and Mr. Briggs have found that there are several limitations to the “clinical method.” One is that the project selected must roughly coincide with the school year; another, that the complexity of the project selected must not be in advance of the students. But both men think that these limitations are in no sense final and that the merit

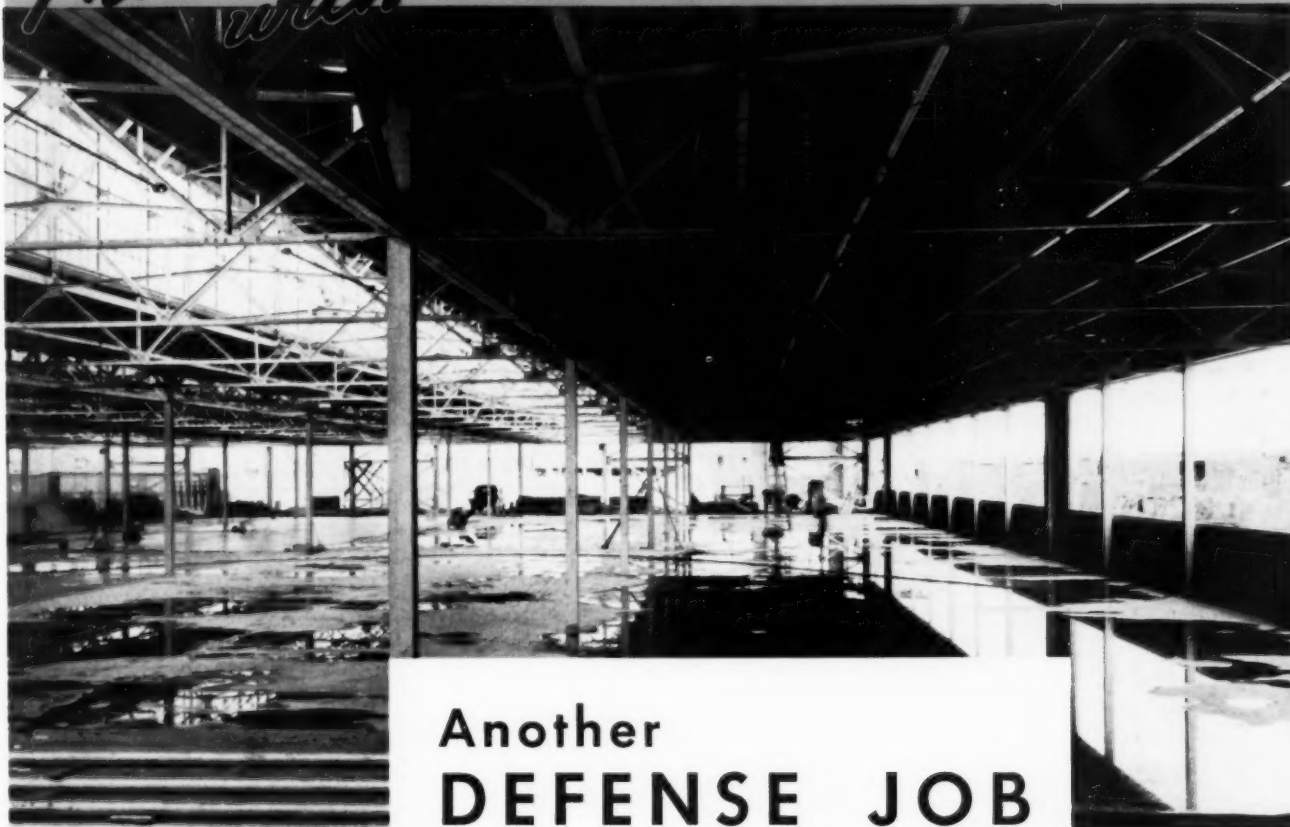
(Continued on page 14)

\*This residence will be presented in detail in a forthcoming issue of ARCHITECTURAL RECORD.



*Protected  
with*

## MAHON STEEL ROOF DECK



Note, in this Defense Plant, that Mahon Roof Deck has been completely installed although the supporting walls are still unfinished.

Mahon Steel Roof Deck consists of an assembly of interlocking ribbed steel plates securely welded together and to the supporting framework. Light—yet exceptionally strong and sturdy—and providing the greater protection from fire and weather which steel alone can give.

### Another DEFENSE JOB *finished on schedule*

Selection of Mahon Steel Roof Deck for so many new defense construction jobs is based on two important factors . . .

**SPEED OF INSTALLATION**—Immediately after the structural steel has been erected, Mahon Steel Roof Deck can be speedily installed—making way for the insulation and roofing material crews that follow. Completion of the building below proceeds simultaneously, without interference or interruption.

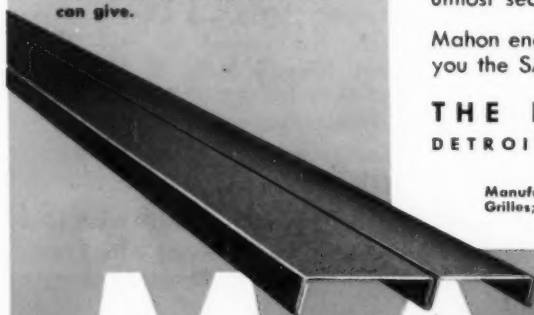
**SECURITY**—from fire—from weather—from trouble—for life. Both plant and equipment are protected by a roof welded into a solid steel unit that provides the utmost security as long as the building stands.

Mahon engineers will give you complete details and show you the SAVINGS effected. Write direct or see Sweet's.

**THE R. C. MAHON COMPANY**  
DETROIT . . . MICHIGAN

*Representatives in Principal Cities*

Manufacturers of Steel Roof Deck, Rolling Steel Doors, Shutters and Grilles; Kalamein Doors, Tin Clad Doors and Cast Iron Roof Sumps.



# MAHON

## WITH RECORD READERS

(Continued from page 12)

of the method is that "the classroom work which the students are doing is closely related to the structure under observation, so that they are able to see their paper work reflected in actual stone, wood and steel."

### Summer Study

A COURSE in home building will be given by the Home Builders Institute of America, newly formed branch of the National Association of Real Estate Boards, in cooperation with the University of Pennsylvania, for two weeks beginning Aug. 18. It is scheduled at the Wharton School of Finance and Commerce.

Faculty is headed by *Paul E. Stark* of Madison, Wis., former president of the association. Architects on the faculty include *Randolph Evans*, New York, and *Kenneth W. Dalzell* of East Orange, N. J.

\* \* \*

AMERICAN DESIGNERS, barred by Axis control from European museums, will have access this summer to the works of Early French, Italian, Spanish and German masters of decorative design in the Cooper Union Museum for the Arts of Decoration, New York. The museum will be open all summer, according to announcement by Miss *Mary M. Gibson*, curator, who pointed out that the Cooper Union collection, arranged for study and research, has 12,500 original drawings for ornament and decoration by 16th, 17th and 18th century master craftsmen.

### Awards

DONALD L. GRIEB of Milwaukee, Wis., 22, graduated last month from the University of Illinois, was awarded the \$1,000 cash prize in architecture of the American Academy in Rome, outcome of a competition problem, "A Primary Training School for U. S. Army Corps Pilots."



These porcelain-enamel-on-steel murals, showing the flower, fruit, vegetable, plant and animal life of Missouri, are hung in the recently built post office at Cassville, Mo. Each mural is four by five feet. In executing the panels, finely ground silica was sprayed on the surface of the 18-gauge steel, and each panel received six three-minute firings at a temperature of 1500° F. The artist was *Edward Winter*, whose ceramic murals were exhibited at the San Francisco World's Fair. Architect: *R. F. Hart*, Supervising Architects Office, Public Buildings Administration, Federal Works Agency

To *Albert Russell Tryon* of Harrisburg, Pa., 27 year old graduate of Pennsylvania State College, went a similar prize in landscape architecture for best solution of the problem "A Neighborhood Community."

\* \* \*

FIRST award of the Frank P. Brown medal for improvements in the building and allied industries was made May 21 by Franklin Institute, Philadelphia, to Dr. *Willis H. Carrier* of Syracuse, N. Y., as "a pioneer in the creation and development of the science of air conditioning."

\* \* \*

THE BOOTH TRAVELING FELLOWSHIP in the College of Architecture and Design at the University of Michigan has been awarded to *Arthur Witt Brewer* of Owosso, Mich.

### Elected

HARVEY STEVENSON has been elected president of the New York Chapter of AIA, succeeding *Frederick G. Frost*. *J. Andre Fouilhoux* replaced Mr. Stevenson as vice president.

### New Addresses

THE RECORD publishes changed and new addresses only on submission, making no attempt to keep a day-by-day account. The only organization in the country with facilities for doing this is *Sweet's Catalog Service*, whose painstakingly maintained list undergoes an average revision of 23 changes for every working day in the year. Below are the new addresses recently brought to our attention:

HARVIN MOORE announces that he will conduct private architectural practice, rather than practice in the partnership of Harvin Moore and Hermon Lloyd, but will have the same address, 2006 W. Alabama, Houston, Tex. . . . *Charles Irvin Thiele* has moved to 503 Third Street, Niagara Falls, N. Y.

### Correction

KEITH O. NARBETT should have been mentioned as associated with Franklin & Kump, architects, in the design of the Acalanes High School (AR 6/41, p. 82).



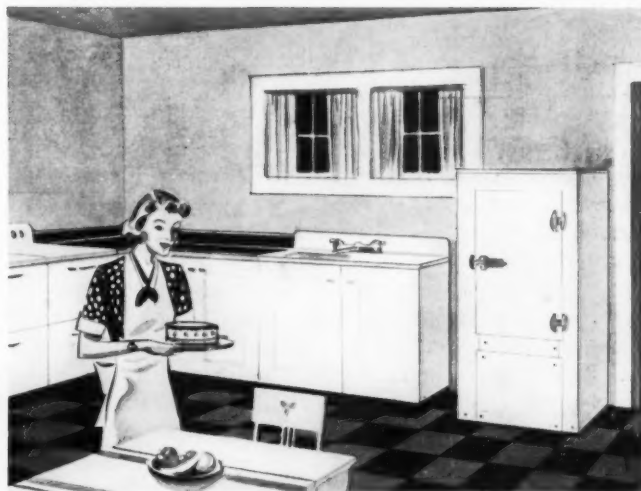


NEW G-E BOOKLET SHOWS IT CAN COST LESS TO LIVE

*Like This* THAN *Like This*



You can save money for your clients by specifying high grade operating equipment like this. G-E's new booklet tells how.



Inefficient operating equipment actually costs more each month. Doesn't do much of an advertising job for you, either.

### A Revelation To Everyone Concerned With Residential Construction

Never before have you seen *figures* showing that people can *live better at less cost*. Now, for the first time, the case for high-quality vs. inefficient operating equipment is clearly and dramatically presented in the G-E Home Bureau's sensational new booklet.

You'll see how important it is to your clients — and

to you — to insist on high-quality wiring systems, heating plants, and kitchen appliances. How low operating costs, low maintenance expense, and long life make up for the little difference in first cost. How reduced obsolescence and greater salability go hand in hand with quality.

**GENERAL  ELECTRIC**

# NEWS FROM WASHINGTON

## RIISING COSTS GIVE FORCE TO "BUILD NOW" IDEA

Price uptrend . . . Housing bills advance . . . Federal Housing Act extended . . .  
Architects for army . . . Financing and rents —By KENDALL K. HOYT

AS THE SCOPE OF THE WAR expands and the defense programs are continually revised upward, the price and supply of materials and labor are bound to be felt in the construction field, which hitherto has been less affected than most of the other major industries.

In addition to aluminum, the first important material seriously involved in priorities, shortages of structural steel are beginning to appear even in the defense housing program. A steel plant expansion program is now being developed but of course will take time. A growing tightness in the supply of freight cars also has led to a speed-up in car building plants. The public is now aware of imminent rationing of such basic items as rubber, gasoline, and electric power.

Along with these symptoms, it is evident that wages—despite all efforts toward arbitration and in many cases because of them—are still on the upturn and are due to rise several percent by the end of the year. So it is clear that prices cannot be wholly unresponsive to conditions of labor costs and supply. The Bureau of Labor Statistics Price Index has risen 2 points to 86 in recent weeks and is thought likely to go as high as 95 before the year's end.

While fear psychology must be avoided if inflation is to be held in check, the BUILD NOW idea is given added force now that the inevitable trends toward higher building costs and increasing difficulties in building can readily be demonstrated to any thoughtful citizen. On top of that, there is plainly an acute shortage of residential, industrial, and commercial buildings in many areas, brought on not only by the direct needs of defense but by the boom times reflected indirectly in consumer industries.

It seems to us, viewing conditions as well as we are able from the facts

that filter into Washington and from the men who come in from out through the country, that architects who report these trends to their clients will render a useful service in starting projects now which may be blocked if they wait a few months. It seems to us also that an altogether proper function for architects is to study the numerous new facilities for financing, the quicker to bring their plans to the pick and shovel stage.

Congressional action has brought no surprises or upsets in the predetermined course of legislation for housing and facilities as the several bills which have been in formative stages through the session continue to move toward final passage.

The Lanham public works bill authorizing \$150 million for schools, sewerage, hospitals, streets, and other needed work in defense production areas has passed the House and has been reported favorably for Senate action by the Senate Committee on Buildings and Grounds. As before noted, this may offer fairly widespread opportunities for architectural services and may prove the forerunner of additional appropriations.

### FHA extension

The Steagall Bill, continuing and broadening several phases of operations by the Federal Housing Administration, passed the House and has been reported by the Senate Committee on Banking and Currency with several amendments. In its present form, the bill extends insurance under Title I to July 1, 1943 instead of 1944.

Under this title, the maximum loan for alteration, repair, and improvement of existing structures is fixed at \$2,500 for one-family dwellings and \$5,000 for multiple-family, instead of \$5,000 straight. The maximum term of improvement loans is left at 3

years and 32 days instead of the House figure of 5 years and 32 days. The bill limits the Administrator's authority to consent to refinancing or extension of loans insured under Title I to the maximum amount and term provided for the insurance of new loans.

Further amendments are technical and clarifying. Administrator *Ferguson's* salary is raised to \$12,000. He took a cut from this sum when he relinquished his post as general counsel to replace *Stewart McDonald* in the top job with a salary of \$10,000.

### Architects for Army

The War Department Appropriation Bill authorizes the Secretary of War to employ architects, engineers, and other technicians on plans and specifications for defense work at compensation determined by him. This got by the House, with some little bickering, without waiting for the omnibus authorization bill containing the provision which will follow.

This measure is one tangible result of the committee appointed by the four leading professional societies, which, as was reported last winter, has been working with the Army Quartermaster's Corps as a consultant on construction. The committee members are *Edwin Bergstrom*, Los Angeles, immediate past president of AIA; *Frederick H. Fowler*, San Francisco, American Society of Civil Engineers; *Warren C. McBryde*, San Francisco, American Society of Mechanical Engineers, and *A. D. Taylor*, Cleveland, American Society of Landscape Architects. They have offices at the War Department and are now advising the Army on ways and means to assure quick economical execution of Army projects. Under the new law there will be more leeway in employing private architects, and probably less red tape. The AIA is now trying to get the Government to standardize construction and particularly to stabilize fees for various types of work. The law authorized the Secretary of War to employ the services of private

(Continued on page 18)

FROM THE  
KOPPERS LIBRARY OF  
TECHNICAL INFORMATION



WHAT WATER-COOLED ROOFS DO  
AND HOW TO BUILD THEM



HOW TO PROTECT CONCRETE AND  
MASONRY FROM WATER



HOW TO BUILD STEEP ROOFS  
WITH COAL TAR PITCH

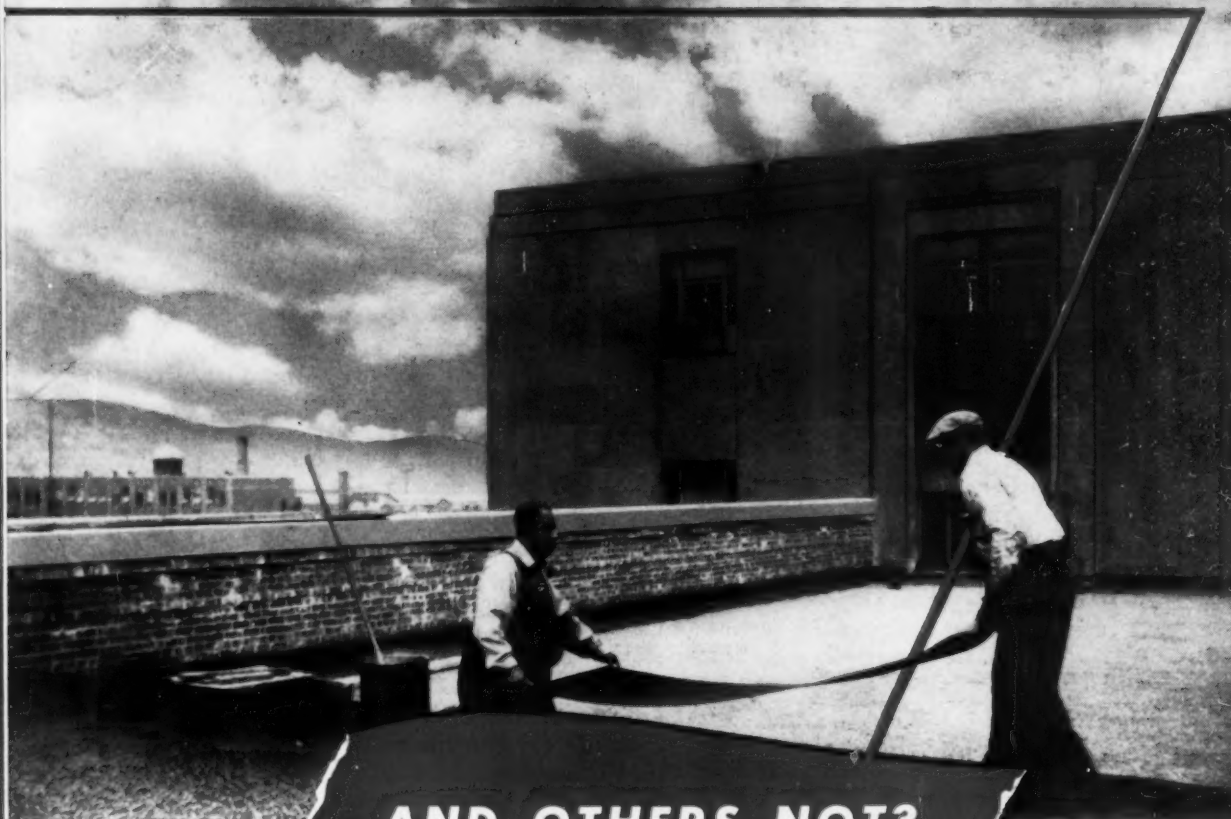


WHERE TO USE  
PRESSURE-TREATED TIMBER



HOW TO TEST DEPTH  
OF PENETRATION IN  
PRESSURE-TREATED TIMBER

Why do some roofs last 20 to 40 years . . .



AND OTHERS NOT?

Why does one type of built-up roof last longer than practically all others? The reasons are pretty involved, but they all boil down to this simple fact: Coal tar pitch and tar-saturated felt are remarkably resistant to the disintegrating effects of sunlight and water.

But the important thing is not *why* one type of roof lasts so much better than others . . . but that it actually does.

No architect today has to judge between roofing materials on the basis of their physical

characteristics . . . he can decide between them on the basis of their record. He has before him the shining success of coal tar roofs during the last seventy or eighty years.

The past is the best guide to the future . . . and the past shows no other records for long life on built-up roofing comparable to those made by coal tar pitch.

With facts like that to guide you . . . with the same materials available today . . . your safest course is to stick to coal tar pitch.

#### KOPPERS COAL TAR PITCH ROOFING AND WATERPROOFING

KOPPERS COMPANY

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## NEWS FROM WASHINGTON

(Continued from page 16)

architects "if existing facilities of the War Department are inadequate . . . and when the Secretary should deem it to be advantageous to the national defense."

The appropriation carries \$276,378,424 for military post construction, \$168,475,083 for barracks and quarters, and \$771,396,000 for expediting production, including plant construction. Congressman *Engel*, as a result of his one-man investigation of the cantonment program, got through an amendment limiting engineering and overhead expenses to not more than 7 per cent of the cost of any project. He temporarily prevailed with an amendment prohibiting cost-plus-fixed-fee contracts on Army construction but the vote was reversed by determined Army and Administration opposition.

Other measures include legislative authority for the Office of Production Management to enforce priorities which became law. The Connally bill allowing the President to seize property in case of labor disputes passed the Senate as an amendment to draft act revisions, but its complex provisions are in controversy in the House.

Several additional Naval construction bills are pending. Several measures affect real estate and other exemptions from civil liabilities for draftees as well as a bill, sponsored by the War Department, for termination of leases of draftees.

### Defense housing progress

Here are a few figures to outline the general scope of the defense construction program as it now stands. As of the end of May, allocations of \$3,420 million had been made for defense housing and post construction and \$3,772 million for new industrial facilities, according to OPM.

Defense Housing Coordinator *Palmer* says the total of dwelling units to be constructed under the defense housing program has reached 97,000 of which 65,000 are under construction and 12,000 completed.

In a single week, more than 1,600 family dwelling units, 695 dormitory units for single men, and 74 trailer units were completed.

USHA has gained a growing share of the housing work, now totaling 25,000 defense dwellings, and is 4 per cent ahead of schedule. The Farm Security Administration is turning some of its past experience to account by a defense addition to the Greenbelt, Md. project, the first planned development of its kind in the country. Multiple dwellings will be placed in groups of two to six within large "super" blocks. Each building will face on a lawn or park and no home will face directly on a main thoroughfare. Although the projects of the FSA, successor to *Tugwell's* old Resettlement Administration, were roundly criticized when they were being built, this experimentation has had considerable effect on subsequent mass housing practice.

Bankers were urged in a recent address by Defense Housing Coordinator *Palmer* to take greater risks in order to expedite housing for the defense program, in which previous schedules have been doubled and redoubled. He advocated low-interest, long-term loans to bring down monthly amortization costs within the reach of the mass of the families who want their own houses. They should abandon the policy of investing for quick turnover, he declared, and put idle capital into housing for the long pull with consequent stimulus to other classes of business.

The rent situation is becoming acute in many defense production centers, especially in the smaller cities, according to *Karl Borders*, price executive of the Rent Section, Price Division, Office of Price Administration and Civilian Supply. In some areas, he stated, vacancies which should be not less than four per cent in a normal rental market have dwindled to one or two per cent, despite the building of new units and the canvassing of available space in existing dwellings.

Mr. *Borders* stated that voluntary

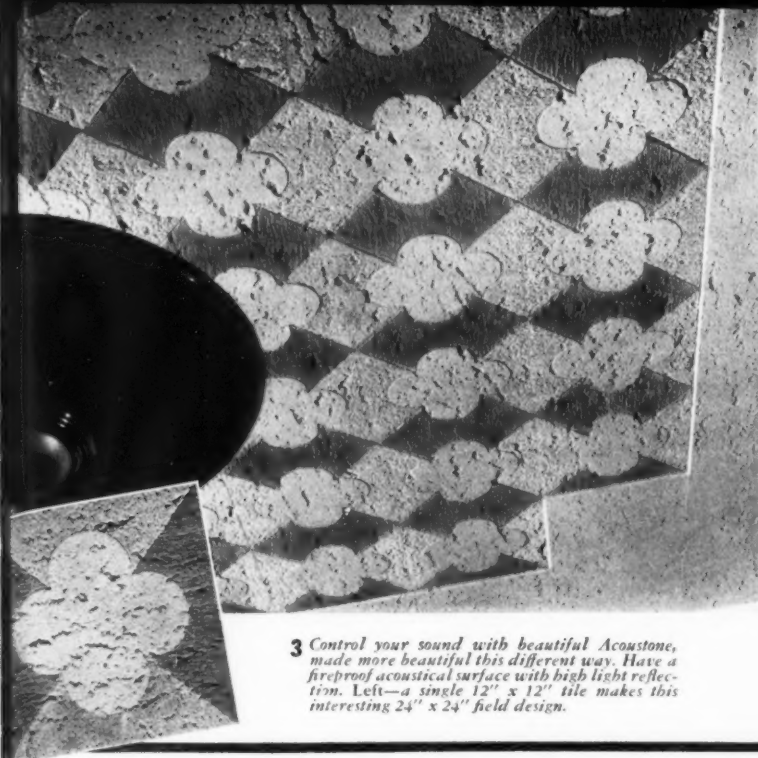
rent control will be used to the fullest extent possible. Mayors are being encouraged to set up Fair Rent Committees with a quasi-official status to make surveys, carry on publicity drives, negotiate with landlords, and mediate in specific cases. The hope is expressed that such committees can handle the situation in most localities. But it is indicated that compulsory action will be resorted to when necessary "for the sake of public morale and family welfare during the emergency" and because of its importance to the general price structure.

In Washington, the housing situation has become so crowded that plans are being made to decentralize some of the Federal agencies by moving their people elsewhere. Representative *Jennings Randolph* of West Virginia, Chairman of the House Committee on the District of Columbia, is getting close to action on his bill to set up an administrator with broad powers to regulate rents in Washington during the emergency. Doubtless this will be a pattern for areas with a generally stabilizing effect upon the housing market.

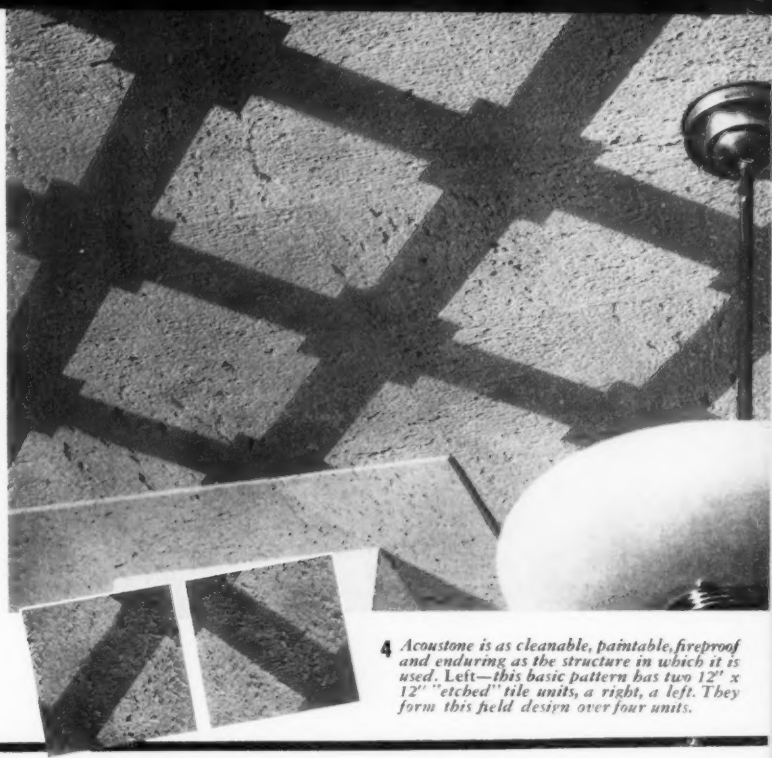
### Airport program

Gradual increase of the airport program opens new outlets for architecture of modern design on administration buildings, control towers, and hangars. The CAA appropriation carries an item of some \$90 million to complete the 250 airport projects now under way, with the aid of WPA funds, and build 149 additional landing fields, plus supplementary work on 20 more. All this is for fields necessary to defense.

It is likely, however, that additional funds for civil airports will be granted before the end of the session in order that commercial and private flying activities may be continued as the expansion of military flying crowds existing facilities. Meanwhile, the new CAA airport at Washington has been opened for service. It has unique features including mirador houses from which weather observations are made from revolving turrets.



3 Control your sound with beautiful Acoustone, made more beautiful this different way. Have a fireproof acoustical surface with high light reflection. Left—a single 12" x 12" tile makes this interesting 24" x 24" field design.



4 Acoustone is as cleanable, paintable, fireproof and enduring as the structure in which it is used. Left—this basic pattern has two 12" x 12" "etched" tile units, a right, a left. They form this field design over four units.

## "MOTIF'D ACOUSTONE"—ORIGINALITY OF DESIGN PLUS ACOUSTICAL EFFICIENCY

● "Motif'd Acoustone" decoration is an integral part of the tile itself. Soft designs, accentuated by lights and shadows, are "etched" into the surface of Acoustone by a new process of the United States Gypsum Company. Several standard patterns are available. In addition, you are given decorative freedom—to create and design your own motif'd surfaces.

When planning your individual designs, note that designs are limited only by two direction "etching" per tile. Limit your design to a 24" x 24" field which will be formed by employing four 12" x 12" units.

If you need a border we suggest that it be plain, without design. It is recommended that borders be of a greater thickness than the field tile and have a 1/8" bevel on the edge adjacent to the field.

*Low Cost* "Motif'd Acoustone" costs only a few cents a square foot additional for this new and attractive decoration.

*Flush Surfaces* made possible by "Spline Alinement." The unbroken field effect of "Motif'd Acoustone" is made possible by Acoustone's "Spline Alinement." This method employs a thin metal spline which is rigidly inserted into each Acoustone

unit and snugly fits a slot in the adjacent unit. Accurate, precision placement of splines and slots plus the sharp, clean-cut edges of Acoustone gives beautiful acoustical surfaces *without* unsightly tile lines.

A nation-wide corps of acoustical engineers and applicators are at your service. Ask your nearest one about "Motif'd Acoustone." Write USG today for his name. Address—United States Gypsum Co., 300 W. Adams St., Chicago, Ill.



This is Acoustone's "Spline Alinement"

4 Individuality of design, maximum light reflection and beauty are assured by this single 12" x 12" pattern which makes up this motif'd design.



# Acoustone

**FIREPROOF ACOUSTICAL MINERAL TILE**



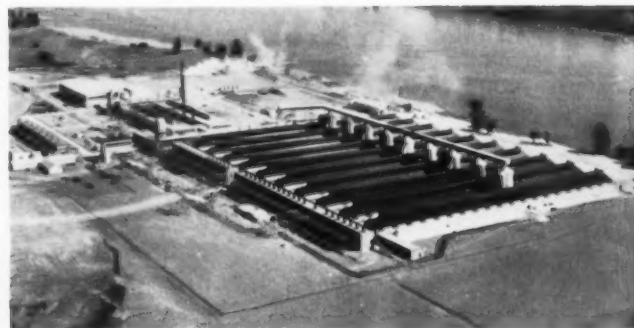
**MADE BY UNITED STATES GYPSUM COMPANY**

—WHERE RESEARCH DEVELOPS BETTER, SAFER BUILDING MATERIALS



## TRENDS IN BRIEF

### INDUSTRY EXPANDS FOR PRESENT WAR-TIME DEFENSE AND FUTURE PEACE-TIME BUILDING



THESE TWO PICTURES from the Pacific Northwest typify the sort of industrial expansion that is taking place as a result of current defense needs. With hydro-electric power increasingly available from such huge projects as Boulder and Grand Coulee dams, new factories are being built as the core of completely new industrial communities. Some of these may become ghost towns after the current emergency has passed, for they have been created only to fill defense needs of a special char-

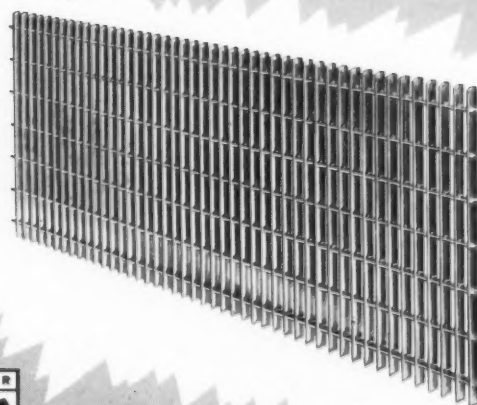
acter. But others, geared to produce materials of peace-time as well as war-time importance, will undoubtedly remain—and grow as the industrial facilities expand. In such new communities architects will find new opportunities for the design of houses, churches, theaters, shops and all other buildings required for modern American living. . . . Illustrated above is the type of project that constitutes the core of these new industrial centers. It's the new Vancouver, Washington plant of the Aluminum

Co. of America—constructed within 15 months on the site of a cow pasture to produce 150,000,000 pounds of aluminum annually. At present this is all for defense and represents about 10 per cent of anticipated annual defense requirements. The aluminum expansion program—which by mid-1942 will assure more than 2½ times the 1939 volume of production—will make the white metal plentiful (and presumably lower in cost) for post-war building.

(Trends in Brief continued on page 24)

BY THE MAKERS OF **uni-flow** GRILLES AND REGISTERS AND **venturi-flow** AIR DIFFUSERS

**70% LESS PRESSURE DROP  
THAN IN A CONVENTIONAL ELBOW...**



WIDE CURVED FINS

WIDE SPACING — LARGE FREE AREA — NON-CLOGGING

**BARBER-  
COLMAN**

**ELTURN**

*Saves*

- HORSEPOWER
- LABOR
- SPACE

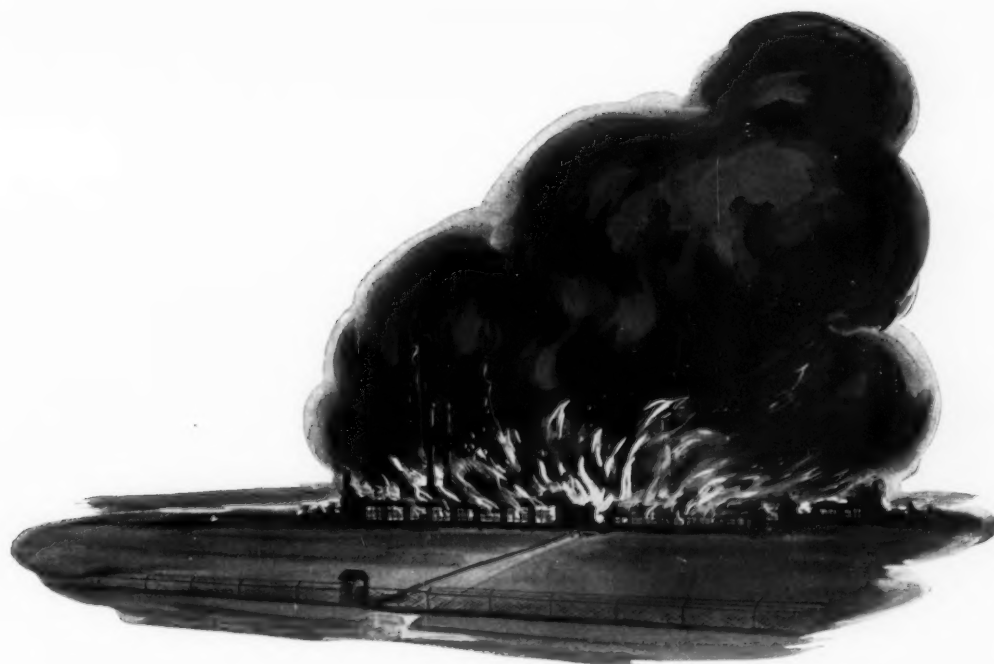
1232 ROCK ST.

**BARBER-COLMAN COMPANY**

ROCKFORD, ILL.



# N



**o architect wants to see his designs destroyed**

*The profession of Architecture—mobilized against the forces of destruction as medicine is against disease—must welcome any advance in man's control over fire. The architect who has dared to hope for a single remedy against this evil will welcome every word of the following statement, which is as constructive in its implication as architecture itself:*

### What Cardox Is

Carbon dioxide is an inert gas; Cardox is that gas in its engineered applications to accidental or incendiary fires, at low temperature in volume as great as needed to overwhelm all combustion instantly. *It does so without adding any extinguishment damage to that of the fire.* There is nothing to clean up—no delay, in factories, to slow up production.

Cardox is also a corporation, a staff of engineers, a group of factories and, on a national scale, a distribution network for the storage and delivery of the gas (CO<sub>2</sub>) in large quantities. Cardox, in one word, is a system which makes loss by fire extremely unlikely.



Cardox Systems store, maintain and release CO<sub>2</sub> as needed on fires at sub zero temperatures. The released CO<sub>2</sub> absorbs heat at 150 B. T. U. per lb. compared with 50 for CO<sub>2</sub> released at 86° F. The pressure of the gas stored below zero is only about 300 lbs. per sq. in. which permits the use of large thermally insulated A. S. M. E. pressure vessels, equipped with a small, automatic refrigerating unit to offset heat loss. The systems with all necessary safety devices have been reported on favorably by Underwriters' Laboratories, Inc. and Assoc. Factory Mutual Insurance Companies.

### What Cardox Does

Cardox employs all the properties of CO<sub>2</sub> which are of known value in fire extinguishment PLUS a capacity for absorbing heat 2 to 3 times greater than CO<sub>2</sub> at atmospheric temperatures. Since uncontrolled fire is essentially the combination of oxygen with a combustible material at an excessive rate, control and extinguishment are achieved by slowing up that combination. In-

roducing CO<sub>2</sub> as a heavy expanding inert gas lowers the oxygen concentration, which in turn reduces the rate of chemical reaction, permitting the cold gas to cool the mixture below the kindling temperature. Because Cardox brings CO<sub>2</sub> to the blaze in a very cold state the important effect of cooling out the fire is speeded up and intensified. Because the Cardox System continues to supply great new volumes of cold inert gas the heat needed by the blaze to create combustible gases from the burning material is rapidly absorbed and the fire goes out—as a puff of breath puts out a match flame.

These principles of Cardox, in practical application add many additional advantages:

- Piping installations tremendously simplified.
- Frequently a single discharge nozzle of high capacity provides ample protection for the average large room.
- Centralized storage of CO<sub>2</sub> in unlimited quantities (125 Tons is the largest installation to date) for release through any branch of the system—serving all hazards.
- Low cost storage capacity economically assures protection never interrupted by shortage or lack of reserve after a discharge.
- System is engineered for complete fire protection layouts to employ every manual or automatic device and insure extinguishment of any blaze in its incipient stage before extensive damage occurs.
- Cardox Systems easily extended to additional hazards as plant expands.
- Constant visible indication of liquid CO<sub>2</sub> in storage tank . . . Ready replacement supply through truck delivery service . . . Freedom from freezing difficulties.



Write us for a Complete Data File on

# CARDOX

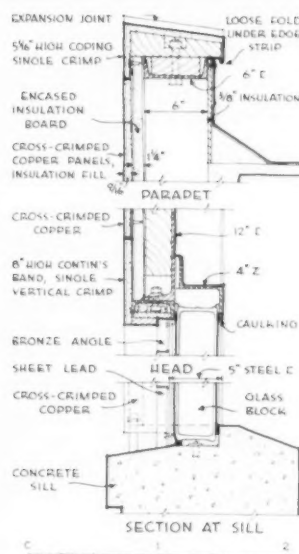
THE NON-DAMAGING FIRE EXTINGUISHING SYSTEM

CARDOX CORPORATION • BELL BUILDING, CHICAGO, ILL.

## TRENDS IN BRIEF

(Continued from page 22)

### COPPER PANELS AND GLASS BLOCKS ARE COMBINED IN EXTERIOR FACING



IN THE DESIGN of this one-story addition for the American Brass Company, in Waterbury, Conn., thermal insulation and scientifically correct lighting were considered essential. Among the unusual requirements was the need for muffling or absorbing noise of the heavy equipment used in the plant.

For the exterior walls, copper panels were used in conjunction with panels of glass block. The solid wall area consists of steel skeleton frame, over which slabs of insulating board sandwiched between two 1/8-in. thick-

nesses of asbestos board are applied. The copper panels are screwed to the outer face of the asbestos-covered slabs.

When lapped and interlocked, the panels form a weather-tight surface (see above). Fastenings of a sliding type, with slotted holes, permit free movement in both hot and cold weather. Buckling is avoided by providing a slight clearance around the four sides of the panel, and caulking is omitted so that each panel may adjust itself to temperature change, swaying or vibration of the building.

The weathertight and non-absorbing surface insures dry insulation and supporting materials, and obviates need of furring and lathing on the inside of exterior walls.

Panels were embossed with a cross-crimped texture to diffuse the sheen that is common to sheet metal. To introduce a slight architectural variation the band course directly above the windows and the coping was given a plain crimp, running vertically. Since the new building adjoins an old brick structure, the copperwork was given an oxidized or statuary finish with chemicals.

### NEW AIR CONDITIONING CONDUITS REPLACE CUSTOMARY DUCTS

**New conduit system for multi-room tall buildings conserves rentable space by eliminating ducts**

AIR CONDITIONING was first applied to rental-occupancy office buildings somewhat over a decade ago. Generally speaking, this infant science had been perfected for large open areas. Its application to tall, internally subdivided buildings introduced at least two serious problems: first, control of temperature, humidity, volume and velocity of air for many individual rooms, each with varying requirements; second, loss of rentable space due to the necessarily large cross-section of vertical duct work. Zoned systems were developed which partially satisfied the first condition; but arbitrary control of an entire building zone as a unit obviously does not provide maximum flexibility. Other problems, such as recirculation of objectionable odors, have been sidestepped—"split" systems provided radiation for sources of odors, air conditioning for other rooms.

Now a system is announced for which a close approach to perfection is claimed. Basically the new system separates the fresh conditioned air provided for ventilation—roughly

(Continued on page 114)

# CURRENT TRENDS OF BUILDING COSTS

Compiled by Clyde Shute, Manager, Statistical and Research Division, F. W. Dodge Corporation, from data collected by E. H. Boeckh & Associates, Inc.

CURVES INDICATE trend of the combined material and labor costs in the field of residential frame construction. The base line, 100, represents the U. S. average for 1926-1929 for residential frame construction.

Tabular information gives cost index numbers for the nine common classes of construction. The base, 100, in each of the nine classes represents the U. S. average for 1926-1929 for each particular group. The tables show the index numbers for the

month for both this year and last.

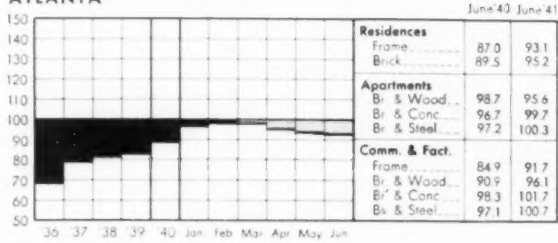
Cost comparisons, as percentage differences for any particular class of construction, are possible between localities or periods within the same city by a simple process of dividing the difference between the two index numbers by one of them. For example: if index for city A is 110 and index for city B is 95 (both indexes for A and B must be for the same class of construction), then costs in A are approximately 16% higher

than in B  $\left( \frac{110-95}{95} = 0.158 \right)$ . Conversely it may be said that costs in B are approximately 14% lower than in A  $\left( \frac{100-95}{110} = 0.136 \right)$ .

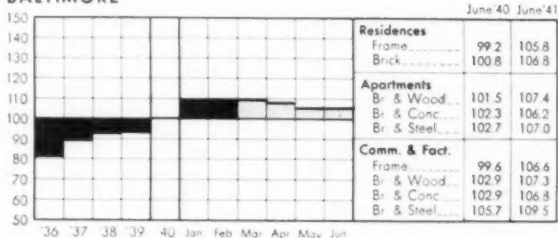
Similar cost comparisons, however, cannot be made between different classes of construction since the index numbers for each class of construction relate to a different U. S. average for 1926-1929.

## CONSTRUCTION COST INDEX United States average including materials and labor, for 1926-1929 equals 100

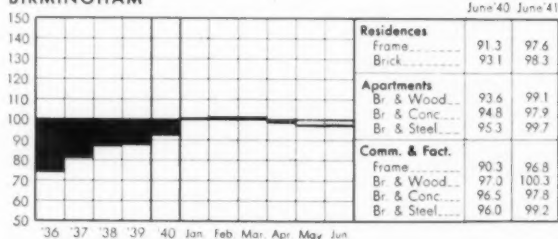
### ATLANTA



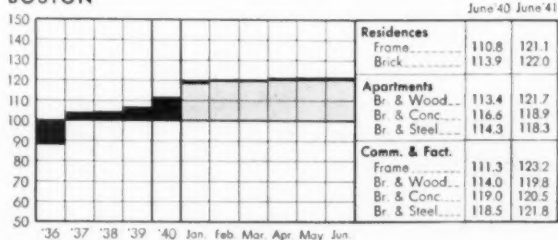
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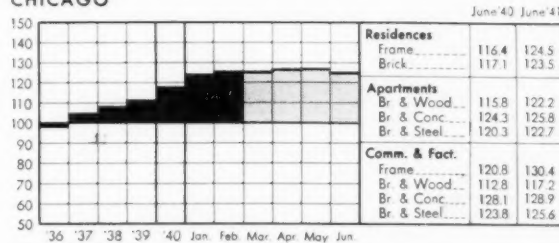
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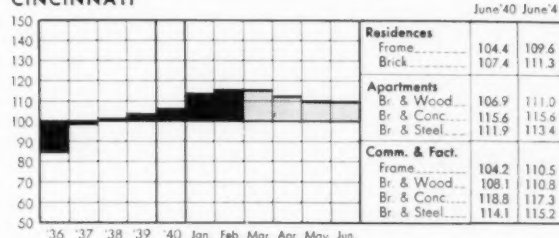
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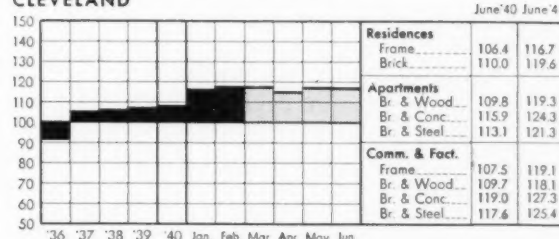
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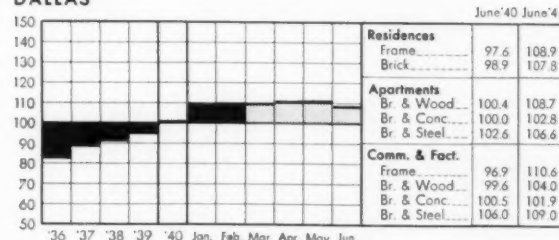
### CINCINNATI



### CLEVELAND



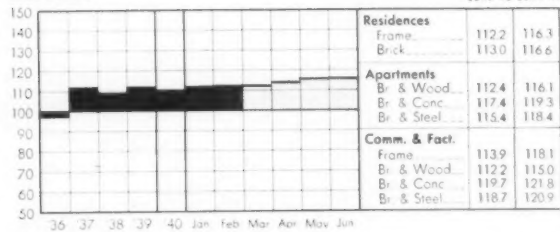
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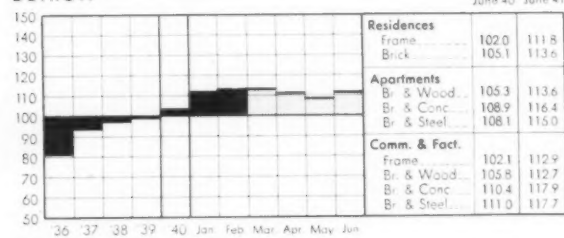


# CURRENT TRENDS OF BUILDING COSTS

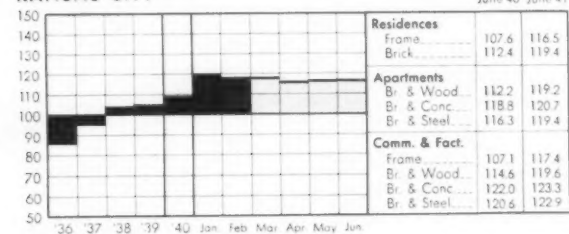
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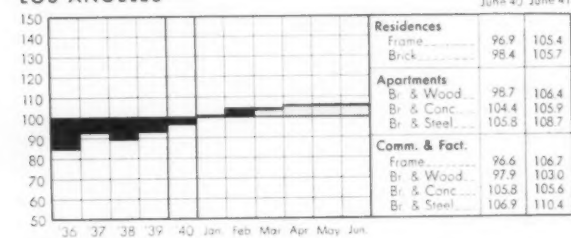
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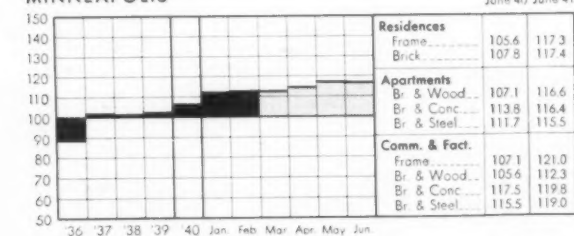
## KANSAS CITY



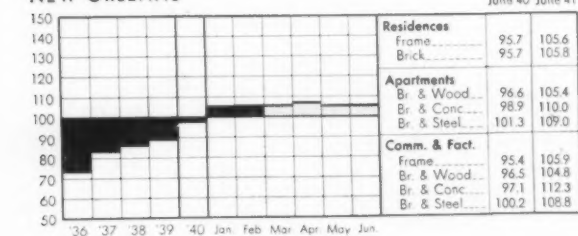
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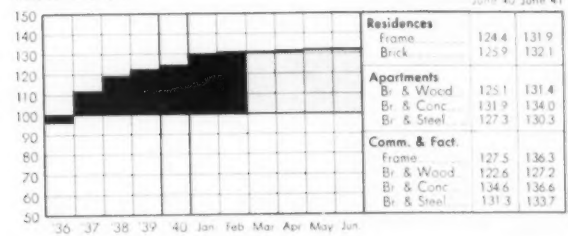
## MINNEAPOLIS



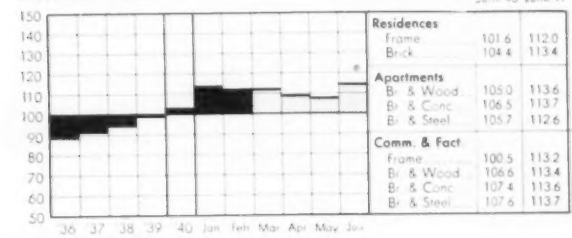
## NEW ORLEANS



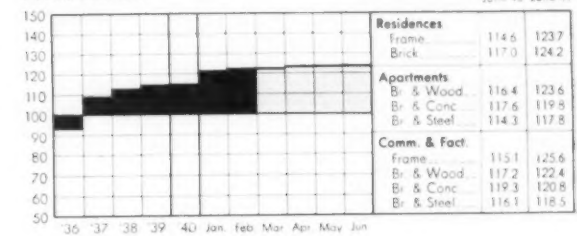
## NEW YORK



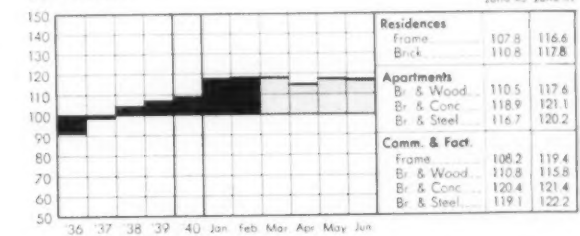
## PHILADELPHIA



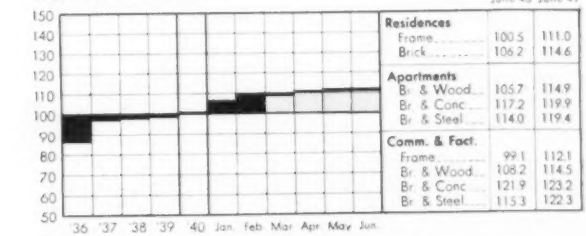
## PITTSBURGH



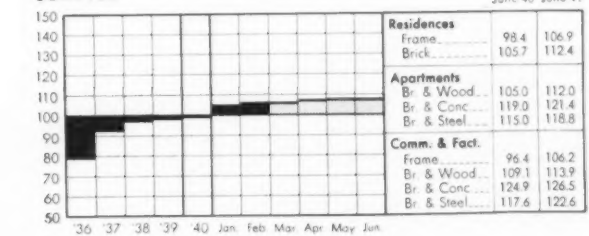
## ST. LOUIS



## SAN FRANCISCO



## SEATTLE



**MAKE THIS TEST -**  
*Prove* **BRIXMENT is BEST!**



**1**

Butter one brick with Brixment mortar, colored with any good black mortar color. Then butter another brick with mortar made with 50-50 lime and cement, and the *same* mortar color.



**2**

Set both brick aside for a couple of weeks. You'll find that the sample made with Brixment mortar retains its full, rich color (right), while the other turns dull or pale.

## **BRIXMENT Does Not Fade Mortar Colors!**

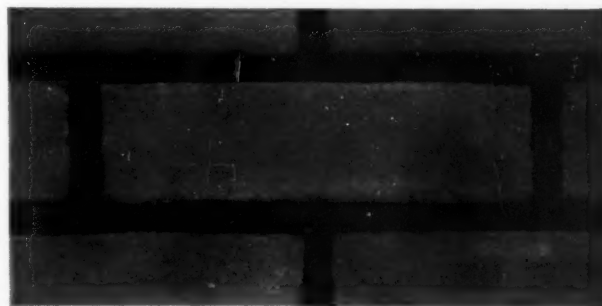
The permanence of the mortar color in the joint depends not only upon the pigment selected but also upon the mortar materials. Too frequently a good job of brickwork is spoiled by the use of a mortar that fades the color or that leaves a white scum of efflorescence on the mortar joint.

Brixment helps prevent this condition. For Brixment is practically free from the aggressive chemical compounds or soluble salts so frequently the cause of fading and of efflorescence.

The waterproofing material combined with Brixment during manufacture is a further protection to the color because it helps prevent moisture

from penetrating the mortar joint and leaching out the pigments.

Brixment is therefore recommended by manufacturers of both mortar colors and face brick, for use with their products.



# **BRIXMENT**

## **For Mortar and Stucco**

*Louisville Cement Company, Incorporated, Louisville, Kentucky. Cement Manufacturers for Over a Century.*

# REVIEWS OF CURRENT LITERATURE

Compiled by ELISABETH COIT, AIA

**THE AMERICAN PUBLIC LIBRARY BUILDING.** By Joseph L. Wheeler and Alfred Morton Githens. New York, Scribner's, 1941. 484 pp. 8½ by 11 in. Illus. (plans, photos, diagrams, etc.). \$4

THIS WORK, by a librarian prominent in really effective library administration and an architect long associated with public library planning, deals with library design with special reference to its administration and service. It brings together in readable form an immense amount of experience first on surveying community needs, computing building and operating costs, site selection, architectural service, contracts and other items of the trustees' program, following this with a detailed study of the elements of the building and their relationships: work spaces, public areas for reading, for book exchange, for exhibits, for lectures, and convenient passage between. About a third of the book is then devoted to an analysis of how 157 libraries erected within the past 20 years have solved their problems, and the final section deals with structure, lighting, heating, ventilating and equipment. Add over 500 illustrations, diagrammatical, pictorial and statistical, and the prospectus of a comprehensive work is complete except for mention of its convincingness. Wide and detailed information is presented in a style at once suave and forcible. The work gives the impression that one or more satisfactory solutions have been worked out for every type of building, for every locality, even the most unusual site. It was undertaken under the auspices of the AIA and has had a manufacturing subsidy from the Carnegie Corporation, and this explains how an encyclopaedic work beautifully made can be sold at a popular price.

**THE INTENT OF THE ARTIST.** By Sherwood Anderson, Thornton Wilder, Roger Sessions, William Lescaze. With an introduction by Augusteo Centeno. Princeton, University Press, 1941. 162 pp. 5½ by 7¾ in. \$2.50

WITH A UNIFYING INTRODUCTION by a Princeton associate professor of

modern languages, four leading American artists—a novelist, a dramatist, a composer, an architect—contribute their interpretations of artistic purpose and function. The choice of Mr. Lescaze as interpreter of the artist as architect is a happy one. Happy too is the form of his presentation: an interview with the artist. One must regret, however, that the interview was not more searching, for it leaves an impression of incompleteness, if not of inconsistency. The young architect, commended in more than one passage for his inability "to create architecture in a vacuum," or even "to make sketches in a vacuum," namely, to design for imaginary people buildings with no definite site or other limitations, will presumably have followed the advice: "Be a sponge . . . listen . . . absorb all the facts . . . reason . . . think . . ." But before he "can even dream of (starting to work) someone must have asked the architect to create." Mr. Lescaze would seem to think that the artist as architect springs full-fledged, adequately to meet opportunity, and knowing all the answers, with only the "projects and designs" he has done—presumably under compulsion of professors and master architects for whom he has worked—as the documents and testimony of what he can do. Architects would like, too, to see further developed the idea that "you do not call architecture" housing developments, but merely "designs in a vacuum."

**THIS REALM, THIS ENGLAND . . .** The citadel of a valiant race portrayed by its greatest etchers. Designed and edited by Samuel Chamberlain. New York, Hastings House, 1941. 180 pp. 7 by 9½ in. \$3.75

OF NEARLY 230 photogravure reproductions, about one-third are photographs of contemporary scenes, and the rest etchings, lithographs and drawings, made by some three score and ten artists over nearly a century and a half, from Turner, Cotman and Havell, through the Whistler . . . Haden . . . Pennell era and on to our

own day with Bone . . . Cameron . . . Chamberlain . . . McBey.

This is one of the most beautiful of the pictorial books designed by Mr. Chamberlain, blending in a satisfactory whole the great variety of prints, many of them interesting historically as well as valuable for their intrinsic beauty, with fine photographs, and taking advantage of the relatively inexpensive photogravure process to bring within reach of a wide public material enjoyment of which has hitherto been time-consuming and costly.

**DESIGNS FOR OUTDOOR LIVING.** By Margaret Olthof Goldsmith. New York, George W. Stewart, 1941. 358 pp. 6¾ by 9¼ in. 236 illus. (photos, plans). \$3.75

**LANDSCAPE ARCHITECTURE IN THE MODERN WORLD.** By Karl B. Lohmann. Champaign, Ill., Garrard Press, 1941. 92 pp. Illus.

THE INVITING large-page, large-type book of Designs will popularize much material acknowledged by the author to the art, architectural, and other journals. It confines its attention to the home, which it considers in well-organized chapters on the patio, porches and terraces, entrances, recreation areas, water, and planting, with emphasis on those features which help to bring house and grounds into one organic whole for the medium and smaller home.

Landscape architecture as presented by the professor of that subject at the University of Illinois is a crisp summary of a subject already treated in part by many hands. Not only domestic properties, including farms and urban lots, receive due attention, but also airports, public gardens and parks, outdoor theatres, school and college grounds, "garden cities of the dead," and town and countryside. While in no way minimizing the importance of vegetation, Professor Lohmann briefly sets out the role of gates, enclosures, shelters, steps, as well as the placing of larger buildings in extensive developments.

(Continued on page 32)



# "MODERN DOORS AND WAINSCOT

## THAT

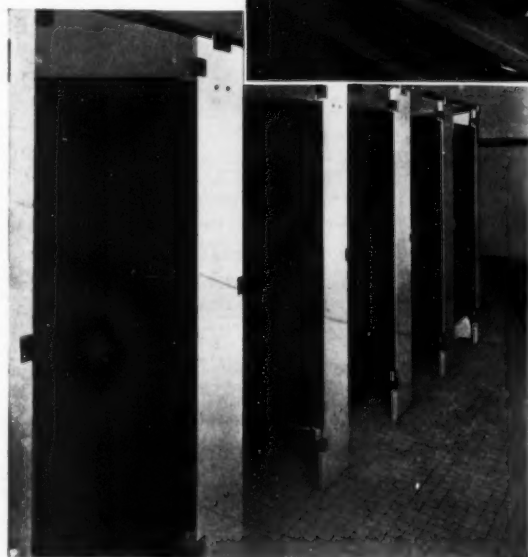
# *Stand the Gaff!*



• Formica flush doors with circular cut outs, cafeteria, Social Security Building, Washington, D. C.

• Formica wainscot and doors installed in administration building of the Susquehanna Bridge, Havre de Grace, Md., by John C. Knipp & Sons.

• Formica black lavatory doors in the Social Security Building at Washington, D. C.



**I**N public buildings where durability as well as attractiveness is a first consideration, light, smoothly finished Formica doors have been growing rapidly in popularity. The plastic surface is very easy to keep clean, and never spots, chips or fades. It requires no laborious polishing but can be washed with soap and water or with alcohol or other ordinary solvents.

There is a wide range of colors, from the very bright to the sombre. If wood finishes are desired, actual wood veneers can be incorporated into the Formica sheet—such woods as walnut, mahogany, sapeli, lacewood and many others.

Material is veneered on hardwood lumber cores which hold hardware. Cut outs of any ordinary shape are possible.

Formica wainscot is flexible and will not crack if walls shift. Stands wear and cleaning indefinitely, always looks the same.

Architects details and color charts on request.

# FORMICA

**The Formica Insulation Company**  
4621 Spring Grove Avenue • Cincinnati, Ohio  
**FOR BUILDING PURPOSES**

## REVIEWS OF CURRENT LITERATURE

(Continued from page 30)

**ACOUSTICS.** By Alexander Wood. New York, Interscience Publishers, Inc., 1941. 588 pp. 5 $\frac{3}{4}$  by 8 $\frac{3}{4}$  in. Illus. \$6

**ACOUSTICS.** By Percy L. Marks. New York, Chemical Publishing Co., 1941. 143 pp. Illus. \$3

THESE TWO BOOKS, one by the University lecturer in experimental phys-

ics at Cambridge University and the other by an architect, together cover the subject for every reader.

Mr. Marks' brief handling of the theory is dynamic by its citing the names of those whose researches have contributed each point. His special contribution is a summary of the acoustical properties of two score

trademarked products used as wall-boards, fillings, etc.

Dr. Wood's book is at once an advanced textbook, and, to judge by over 600 name references in the text and over 300 acknowledgments for illustrations, an up-to-the-minute summary of the "history of the art." As fresh and readable as can be only a work "written primarily for the interest of writing it," the book is thoroughly practical in its application, from the mathematics of the bird call and the sensitive flame, through sound recording, sound absorption co-efficients of materials and acoustical properties of buildings.

### CURRENT PERIODICAL LITERATURE

#### THE ENGLISH DISCOVERY OF GREECE.

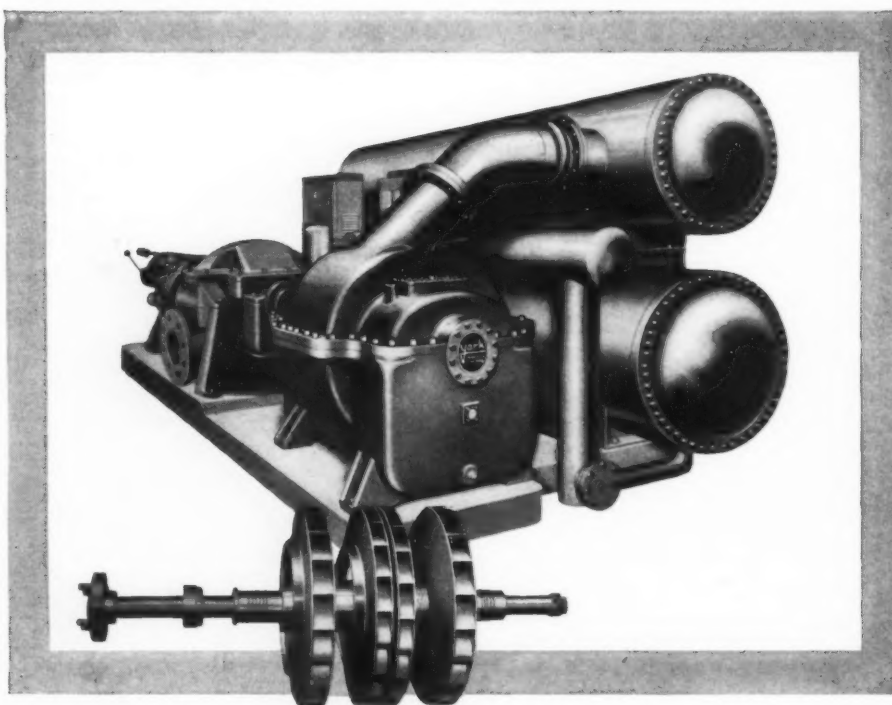
1. The Antiquarian Pilgrim. 2. The Modern Visitor. Architectural Review, Cheam, England. April 1941

GREEK ARCHITECTURE as introduced by antiquarian and architectural observers in the 18th and 19th centuries recorded in meticulous drawings purity of design, refined standards of proportion and detail, which resulted under northern skies in works with an emphasis on sobriety and scale—at its best grand, if gloomy, impressiveness allied with fine scholarship; at its worst a dull respectability allied with pedantry. But the visitor gets a different impression, and photographic processes today bring out the strong color, the clear sky and atmosphere as well as the form, the gaiety with which the raw materials of architecture, sunlight and shadow, marble and vegetation interact upon each other.

**NEW EVIDENCE ON THE EVOLUTION OF THE SKYSCRAPER.** By Roger Hale Newton. Art Quarterly, Detroit, Winter, 1941. Illus.

DEFINING skyscraper construction as consisting of a metal frame, enclosed by curtain walls entirely supported by the frame and performing no structural function, the author traces the essentials of that type of construction from beginnings over 100 years ago, when as yet iron columns rested on wooden girders (probably because of the difficulty of obtaining an adequate supply of iron members in any country at that time), through the specifications for the dome of the

(Continued on page 34)



### Stainless Steel Impellers give York Turbo Compressor LONG-LIVED BALANCE

Design counts in a machine that turns at three to six thousand rpm. Impellers made from stainless steel, and perfectly balanced at the factory, remain that way, year in and year out . . . and with stainless steel there is permanence.

When you consider this important advantage, remember, too, that in the York Turbo Compressor, the use of balance discs makes

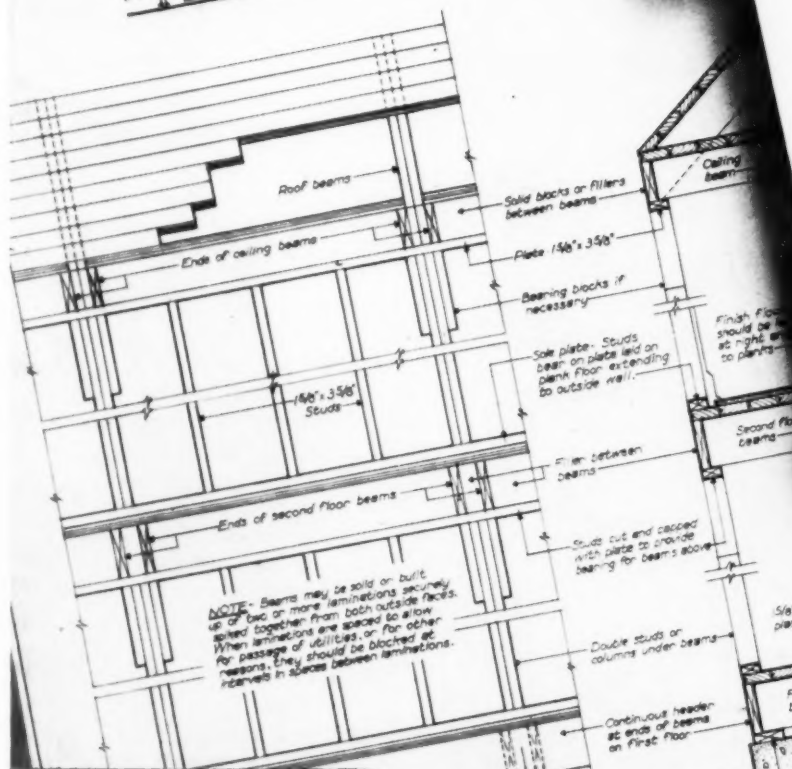
thrust bearings unnecessary . . . that the York shaft seal may be removed for inspection without removing the refrigerant. In large scale air conditioning, the York Turbo Compressor presents *new* economy with all the *traditional* York dependability. York Ice Machinery Corporation, York, Penna.



**YORK REFRIGERATION AND AIR CONDITIONING**

"Headquarters for Mechanical Cooling Since 1885"

## FRAMING DETAIL PLANK-AND-BEAM



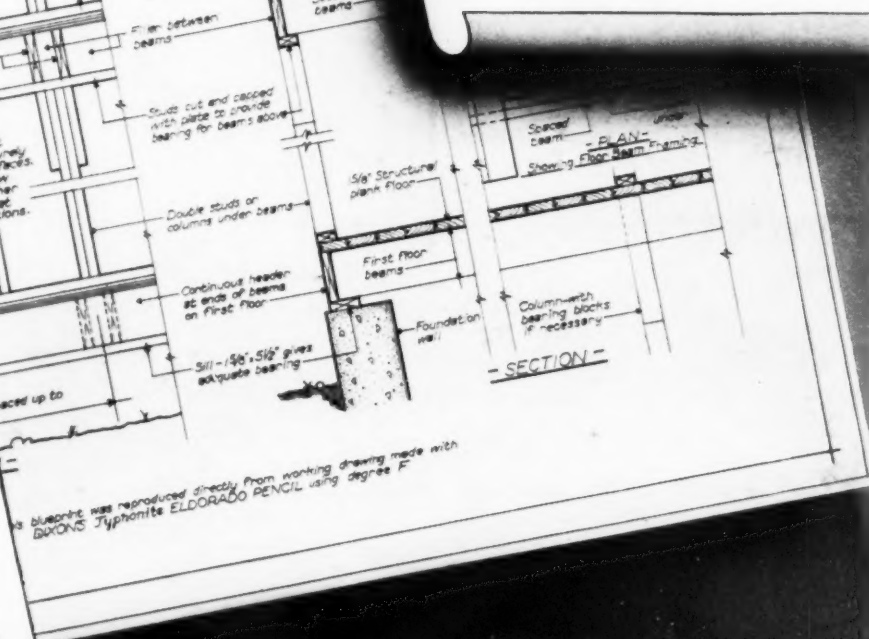
### THE TWO WAYS

...you can test the quality of Dixon's Typhonite Eldorado pencils are (1) by working with them and (2) by inspecting the blueprints made from Typhonite Eldorado drawings. The perfection of detail is due to the uniform opacity of lines drawn with Typhonite Eldorado leads. Which in turn is due to the presence of Typhonite—whose evenly minute particles are produced in a typhoon of super-heated steam—an exclusive Dixon process. Pencil Sales Department 225-J7. JOSEPH DIXON CRUCIBLE COMPANY, Jersey City, N. J.

### THE ORIGINAL BLUEPRINT

...of this drawing illustrates the slow burning or mill construction long used in industrial structures. It is claimed that the plank floor requires less lumber and less labor than the conventional joist type, with a saving of over 20% in cost and a considerably improved resistance to heat loss.

The essential principle of the plank-and-beam system is shown in this Typhonite Eldorado detail (the illustration is one-fifth actual size). A Typhonite Eldorado was used on a white tracing paper of average quality. A large-size blueprint will be sent to you free. Write the address given below. (Offer good for only 30 days after appearance of this magazine.)



PERFECT BLUEPRINTS ARE MADE WITH DIXON'S **TYPHONITE**

**ELDORADO**

MADE IN U.S.A. DIXON'S ELDORADO HB



## REVIEWS OF CURRENT LITERATURE

(Continued from page 32)

National Capitol of 1855-56, and Roebling's designs for the Cincinnati and Brooklyn suspension bridges of 1855 and 1867. A carpenters' strike in Paris in 1846 gave impetus to the use of iron girders; and after the erection of the Crystal Palace large-

scale production of iron members appeared. In 1857 in a London shop building the front above the shop was carried on a wrought iron tubular girder of 32-ft. span, and in the same year Peter Cooper stipulated that his new building for the Cooper Union should consist of a metal frame

throughout and floors of brick arches turned between I beams for maximum fireproofing. The first instance of an iron structure carrying its masonry walls is Préfontaines St. Ouen docks building of 1865, and this building doubtless influenced Jenney, who studied in France and whose Home Life Insurance Building dates from 1883.

**JOSEPH GANDY: PROPHET OF MODERN ARCHITECTURE.** By Dmitri Tselos. Magazine of Art, Washington, May 1941, pp. 251-253, 281. Illus.

GANDY, best known for his association with the classicist, Sir John Soane, published two volumes of his own designs in 1805 and 1806, showing asymmetrical designs, and the decentralized plan only one or two rooms deep so as to secure light and ventilation. He anticipated F. L. Wright in advising adaptation of the building "to the particular circumstance of the spot upon which it is to be erected," in the horizontal emphasis and the low overhanging roofs . . . foreshadowed the International style in the horizontal windows grouped as striped fenestration. . . in the interest of economical construction designed in the utmost simplicity, advised the use of cheap local material: pisé work of clay, rough cast . . . and even iron for supports.

**NOTES ON INDOOR (Anti-Debris) SHELTERS.** Architect and Building News, London, April 18, 1941, p. 42-3. Illus.

CASUALTIES are caused by collapse rather than by splinters or bombs, and an extract from Bulletin 16 of the Ministry of Home Security Research and Expt. Dept. outlines problems to solve in designing shelters to be used in a ground floor room of the home. The human frame can withstand a blast capable of demolishing a 13½-in. brick wall, therefore blast resistance is of least importance. Of primary concern is resistance to crushing by falling masonry, say heavy-point loads of 3 cwt. of masonry falling about six feet, for bombs explode usually under ground and the shock brings down exterior walls. The ceiling left partly unsupported loses its plaster, but the floor of the upper story solidly attached to joists on the inner walls may hold.



### You can save her 95 miles of steps each year

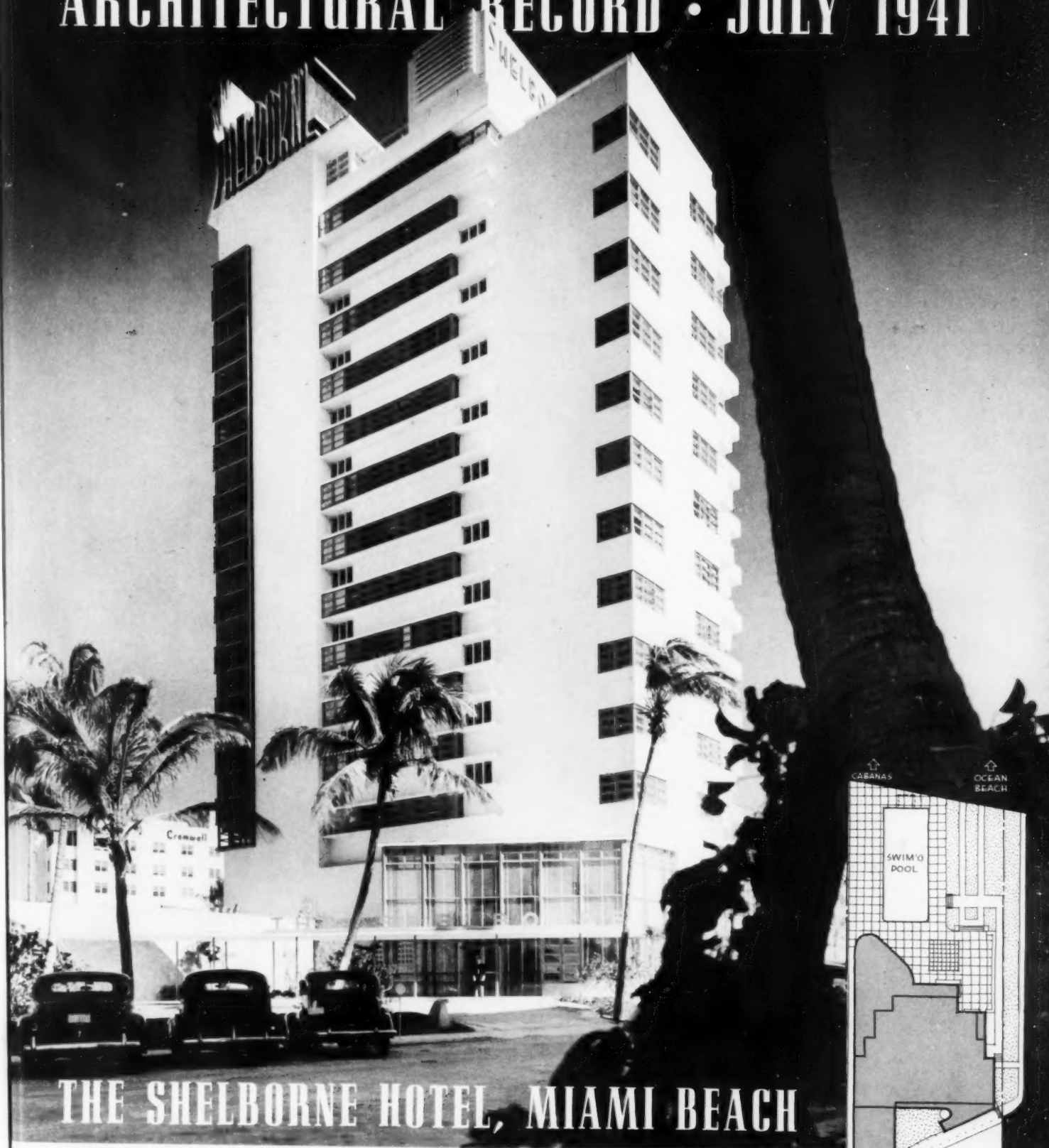
STUDIES show a woman walks about 125 miles a year in an old-style kitchen. You can plan a modern all-steel kitchen and cut this down to about 30 miles. A woman appreciates this saving of time and effort.

A variety of cabinet sizes enables you to create convenient work centers around the sink, refrigerator and range at surprisingly low cost—in some homes for no more than the price of a good refrigerator. Many steel cabinets today are made of ARMCO Prime Quality Steel. It is strong without being bulky and is made especially to take a smooth and serviceable baked-enamel finish.

Steel cabinets provide more usable space too. And every part fits together perfectly. Doors open and close easily and quietly. Drawers will not warp or rot. The cabinets are vermin-proof, dust-proof and easy to clean.

You can use steel cabinets for both new and remodeled kitchens. Write for complete information. The American Rolling Mill Company, 1881 Curtis St., Middletown, Ohio.



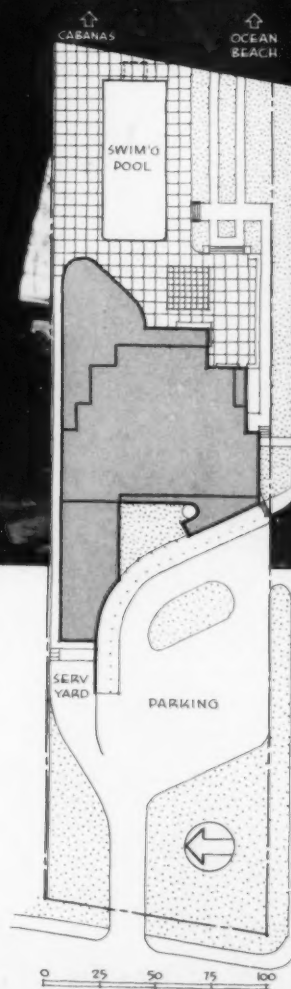


## THE SHELBORNE HOTEL, MIAMI BEACH

Ernest Graham

### POLEVITZKY and RUSSELL, Architects

ONE OF THE MOST NEWSWORTHY of the 40 or more new hotels built at Miami Beach in the past year, the Shelborne is of very special interest to designers of resort hotels. The architects faced problems that are familiar in such favored locations: land costs were high; the main outlook was in but one direction. The difference in rental value of rooms that face the view and those that do not was a sizable economic—hence design—factor. In planning the Shelborne, an important element in the successful solution of the problem was the choice of a skyscraper scheme rather than a spreadout plan. But particularly noteworthy is the typical floor-plan layout in which the architects contrived to obtain the ocean view for 11 of the 13 rooms on each floor. The high land cost helps to explain erection of so large a building on so comparatively narrow a lot.







FRONT ENTRANCE

THE ALL-OVER DESIGN PROBLEM was to plan a 140-room resort hotel on an ocean-front property 100 by 400 ft. in area, with the important ocean outlook along the narrow, eastern end of the property. The hotel was projected to serve a clientele demanding such luxury features as a swimming pool, cabana colony and solaria. In evolving the compact plan, with most of the rooms facing the ocean, the architects relegated stairways and as much of the service portion as possible to the west side of the building. Since most arrivals and departures are by car, the main approach is treated primarily as a problem of automobile rather than pedestrian circulation, and parking facilities are as large as space permits.

Inside public areas are comparatively limited; but these are amply supplemented by outside decks and terraces, and the whole pool and play area. Placement of the building well back from the ocean provides complete privacy for these outdoor lounging and recreational areas. In the basement of the hotel are both service rooms (under the kitchen wing of the building) and locker and recreation rooms for bathers. A sun-bathing solarium, with massage rooms for both men and women, is located on the roof.

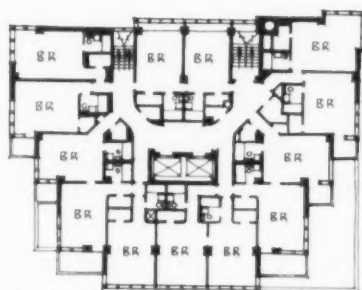
The building is entirely fireproof, placed on wood piling with reinforced concrete foundations, retaining walls, basement and floor slabs. The skeleton is of steel—one of the few steel-frame buildings in Miami Beach. Filler walls are of concrete block, stuccoed on the exterior. The north bay on the west side of the hotel is surfaced with blue-green structural glass. Masonry portions of the walls are a soft gray color. The window trim is painted blue-green to match the glass-surfaced bay.

The concrete sky sign at the top of the building was poured in place. The letters were designed as thin reinforced concrete walls and slabs by Engineer Richard Belsham. To give an idea of scale, the "S" is 10 ft. wide and 28 ft. tall. Neon tubing is centered on each letter for night display.

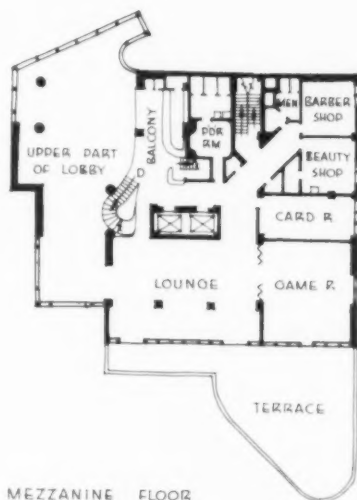
Photos by Ernest Graham



# THE SHELBORNE HOTEL, MIAMI BEACH



TYPICAL FLOOR



MEZZANINE FLOOR



FIRST FLOOR

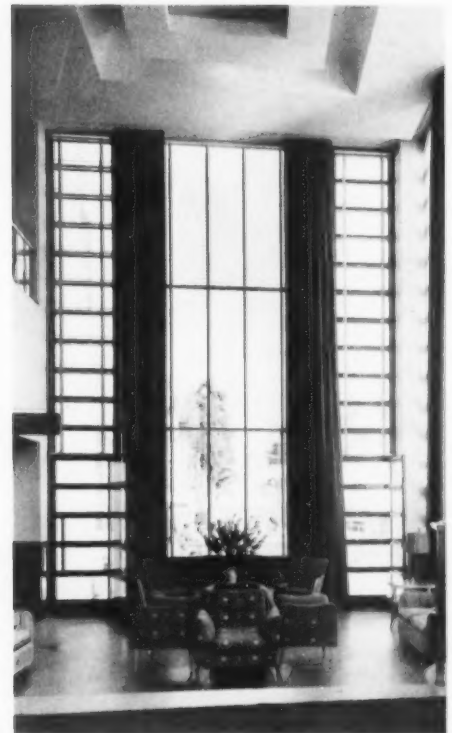


FROM OCEAN TO HOTEL



FROM HOTEL TO OCEAN

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LOBBY WINDOW WALL



Photos by Ernest Graham

ALTHOUGH the typical floor plans are symmetrical, the lobby floor is planned with a major axis along the south side. This is explained by the architects' conviction that it was essential to provide arriving guests with an immediate and impressive view of the cabanas and beach, which are so important a part of the hotel's attraction. Hence the whole east wall of the lobby at this point is an enormous room-height view window. Elevators and business areas are kept at one side. A dramatic, freestanding stair leads up to the mezzanine. The two-level dining room extends beyond the main face of the building, commanding an extended view of the recreational area and forming the popular outside lounging deck above.

In the lobby, columns are surfaced with dark cedar-colored Tennessee marble; wainscots, desk fronts and walls in the elevator hall are of rose-gray marble. The decorative ceiling light units are equipped with duotone fluorescent tubing.



## THE SHELBORNE HOTEL, MIAMI BEACH



FREESTANDING STAIRS TO MEZZANINE have an etched clear plastic balustrade and aluminum handrail



THE DINING ROOM is built on two levels so that those at the back have an unhindered view of the ocean



# THE SHELBORNE HOTEL, MIAMI BEACH



THE COCKTAIL ROOM, decorated with Mayan drawings in primary colors



THE MEZZANINE LOUNGE opens onto the open deck above the dining room



Photos by Ernest Graham

TYPICAL FRONT ROOM opens onto a private balcony—a facility that has proved highly popular with the clientele. Sash are of wood, of the awning type



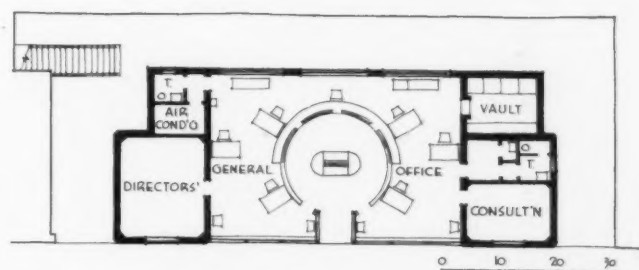
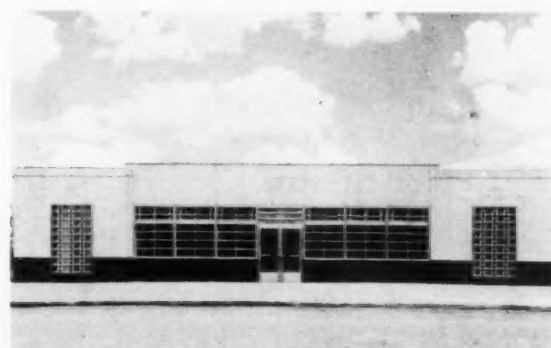
IN THE MAIN ROOM, the woodwork is walnut; walls are smooth plaster; the ceiling is acoustical plaster

*Martin's Photo Shop*

## BANK

**TERRE HAUTE MUTUAL SAVINGS AND LOAN ASSOCIATION, TERRE HAUTE, IND. MILLER & YEAGER, ARCHITECTS.**

An unusually efficient plan distinguishes this modern bank building. Since the entire staff comes in contact with the public, the public space has been made the center of all activities, and each department functions with minimum waste motion. Of fireproof construction, the masonry building is surfaced with buff artificial stone with a black marble base. Window trim, doors and vestibule framing are of stainless steel; glass block is extensively used. The roof deck, supported on steel beams, is insulated with cork and finished with tar and gravel. In the circular public space, the floor is sheet rubber; in the main office, mastic tile; private offices are carpeted. Completely air conditioned, the building is heated and ventilated by a forced air system, discharged through outlets that are integrated with the ceiling lighting fixtures and withdrawn through grilles in the base.



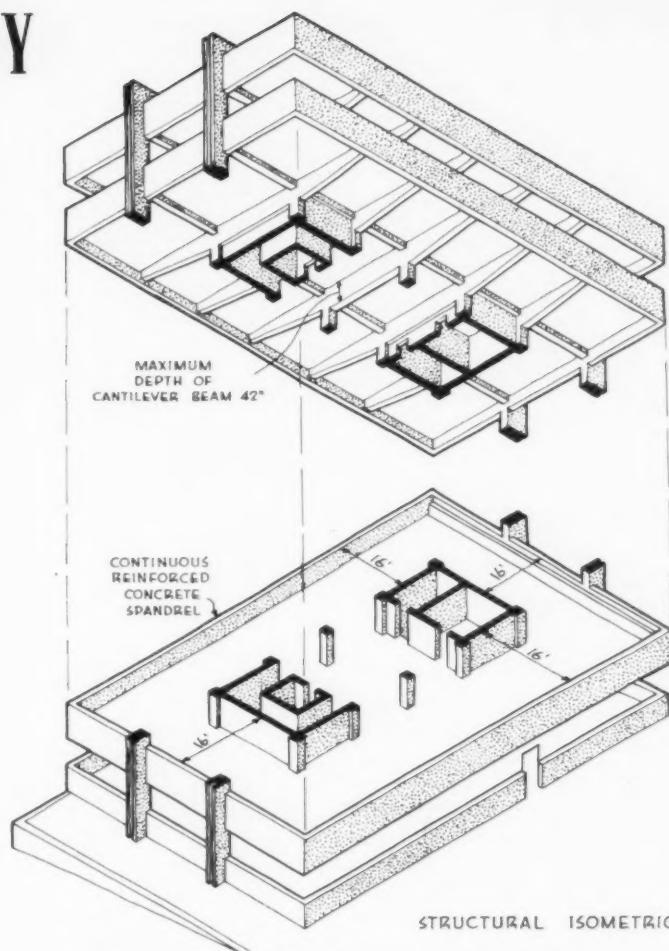


*Roger Sturtevant*

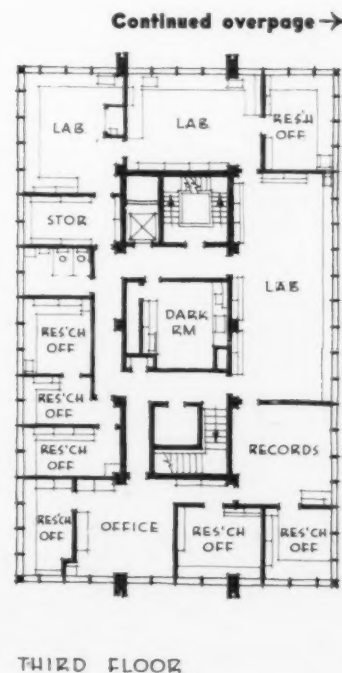
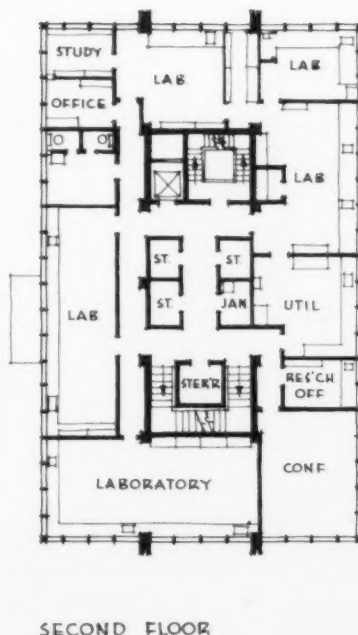
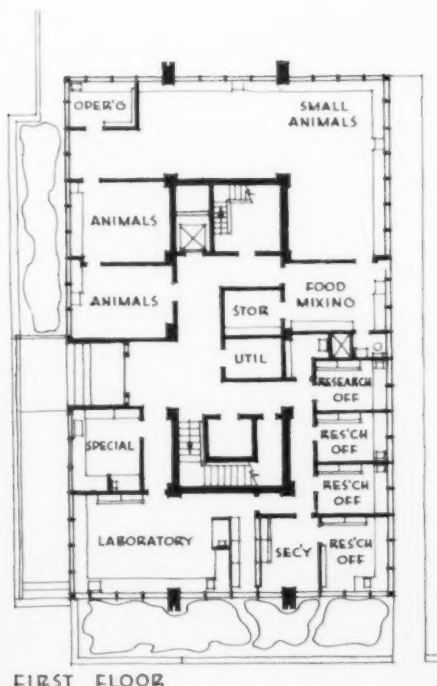


# RESEARCH LABORATORY

**RUTH LUCIE STERN RESEARCH BUILDING, SAN FRANCISCO, CALIF. BIRGE M. CLARK, DAVID B. CLARK, ARCHITECTS.** Increasingly architects are called upon to design special-purpose buildings that demand complete flexibility in use. This research laboratory building for Stanford University's Medical School solves this problem with notable success. The unique structural system (see detail) allows for changes in uses of rooms and even of their sizes with a minimum of effort. Steel sash, equipped with double-strength glass, are laid out on 4-ft. intervals, and the interior partitions, of stud and plywood construction, are so secured that the school's own mechanics can readily remove and re-erect them when laboratories are increased or decreased in size. Similarly service lines and facilities are installed for use at any convenient point (see next page). By using the concrete walls surrounding the stair and elevator shafts as bracing elements, a resistance to earthquake forces has been developed to withstand lateral loads up to 10 per cent of gravity—considerably in excess of San Francisco code requirements. The building is steam heated, with a thermostatically controlled ceiling unit heater with fan in each room. There are three separate exhaust systems which exhaust air from all rooms; no air is recirculated. Cost of the building, complete with floor coverings, lighting fixtures, cases, etc. other than the movable equipment was \$98,000.



**STRUCTURE.** From the double row of 7 columns which form a central structural core (housing stairway, elevator, ventilating shafts and the main stacks of all utilities), the floors are cantilevered out a distance of 16 ft. Thus, the entire surrounding area is free of structural elements, except for the two columns in front and the two at the rear. Except for the movable partitions, the building is entirely of fireproof construction, with walls of reinforced concrete and glass; concrete floors and ceilings.



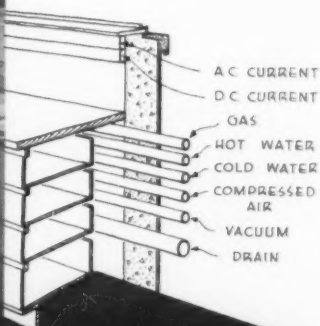
Continued overpage →



MAIN ENTRANCE



Around the entire building, beneath windows and work counters, run hot and cold water, compressed air, suction and gas pipes. Above the counters are a continuous pair of metal boxes, which carry AC and DC current. Any of these seven facilities may be attached at any point. Steam pipes run up near the ceilings



Photos by Roger Sturtevant



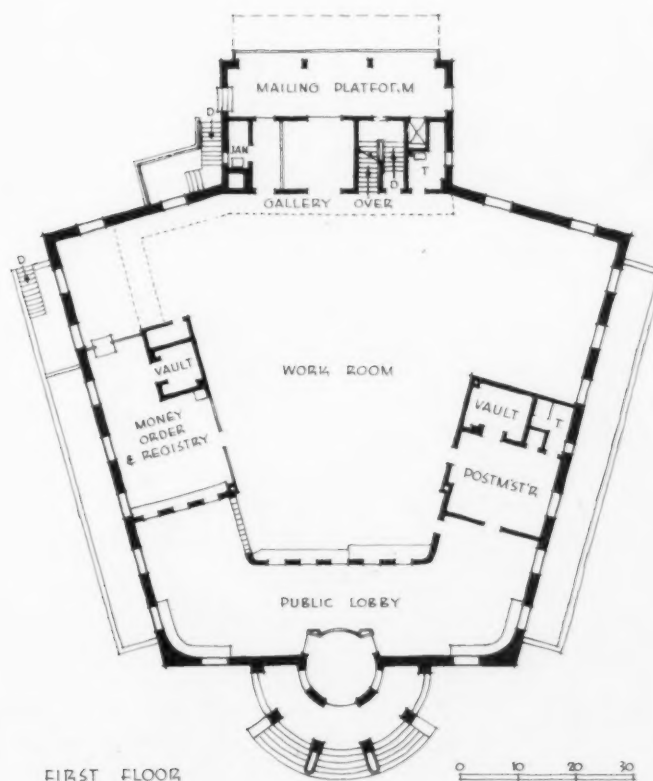
## POST OFFICE

**UNITED STATES POST OFFICE, GREAT NECK, N. Y. TREASURY DEPARTMENT, PROCUREMENT DIVISION, PUBLIC BUILDINGS BRANCH. WILLIAM DEWEY FOSTER, CONSULTING ARCHITECT.**

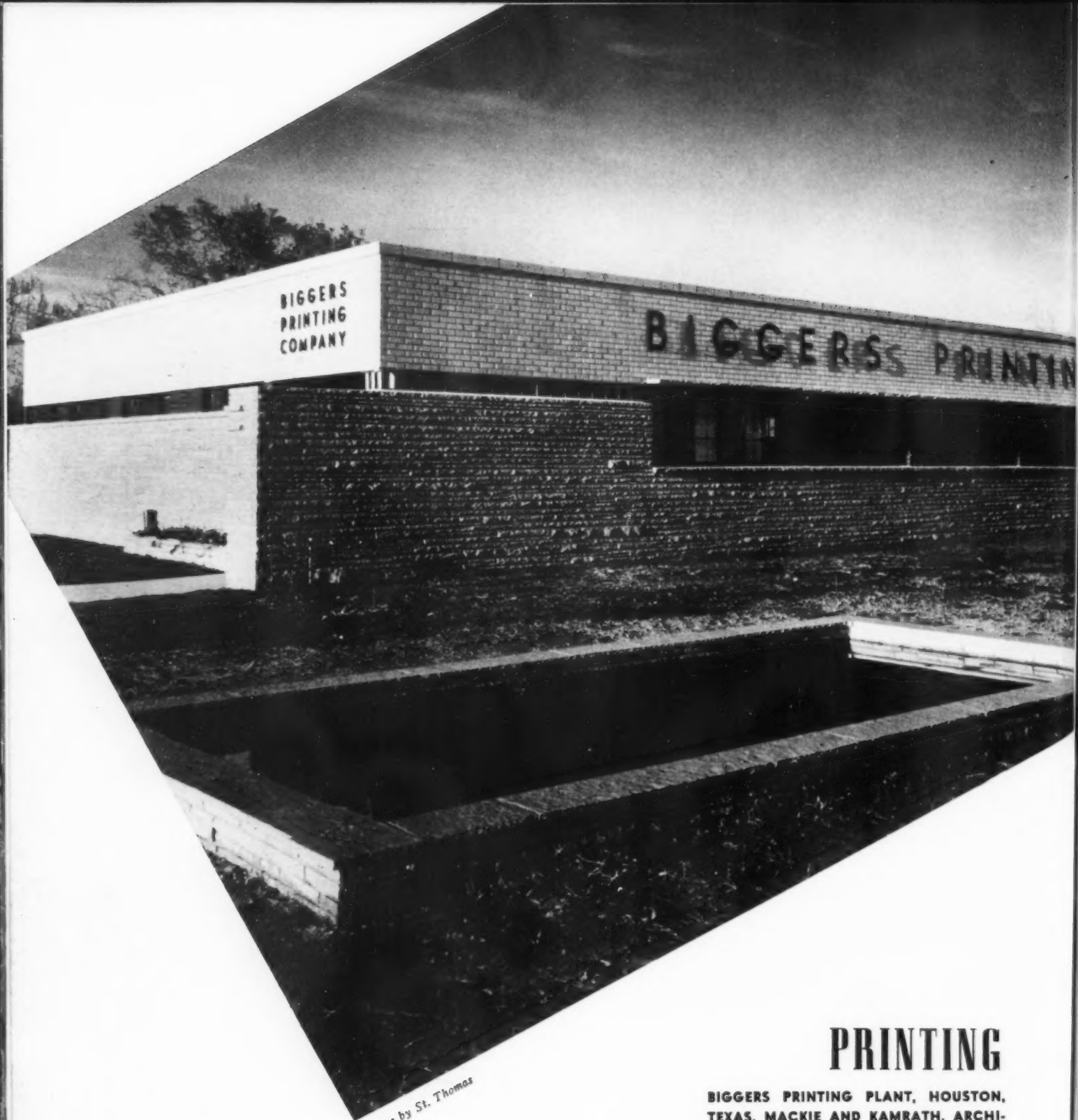
Intersection of two important streets at an acute angle was a primary determinant in the planning of the building. The parti consists of a symmetrical scheme with side walls paralleling the streets. Within this area, the various public, private and work rooms are ordered for maximum convenience in use. At the rear is a concrete drive and areaway connecting directly with the centrally located mailing platform. The masonry exterior walls are surfaced with limestone, with a granite base; steps and platforms are also of granite. Floor slabs are reinforced concrete. The slag composition roof is applied above a roof frame of structural steel. The eagle over the entrance is the work of Sculptor Gaetano Cecere. The public lobby is finished with walnut-veneered panels above a marble wainscot; the floor is terrazzo. In the full basement are the fuel and boiler rooms; an office for the post office inspector, several storage rooms and the large central space which is to be used in the future as an emergency work room.



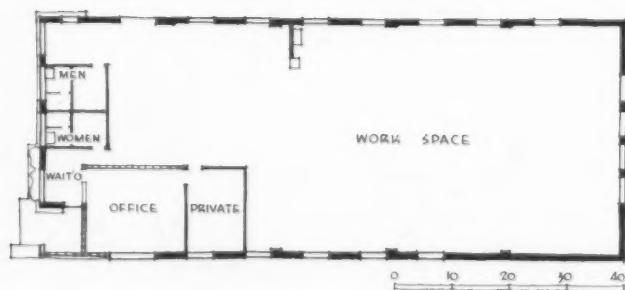
*Photos by Sigurd Fischer*







*Photos by St. Thomas*



## PRINTING

**BIGGERS PRINTING PLANT, HOUSTON, TEXAS. MACKIE AND KAMRATH, ARCHITECTS.** Architects concerned with the design of industrial buildings will find in this smart new structure a refreshing and challenging solution. An exceptionally prominent industrial site, beside a bayou and not far from downtown Houston, prompted architects and owners alike to demand a building that would do honor to its surroundings. The final design was selected only after fabrication of a complete, accurate scale model. The building is so located on the site that it is seen to good advantage both from the street on

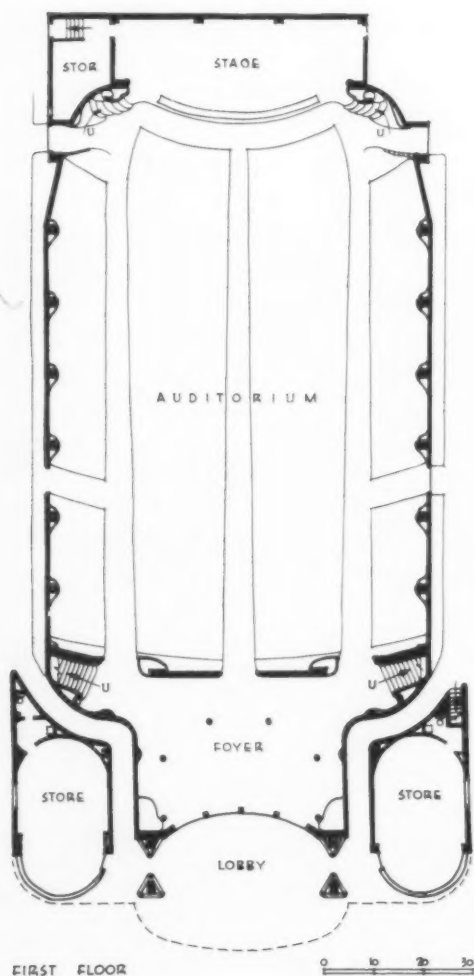
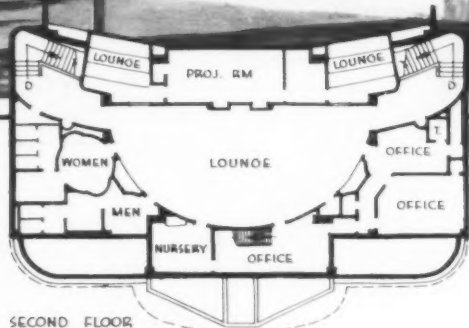
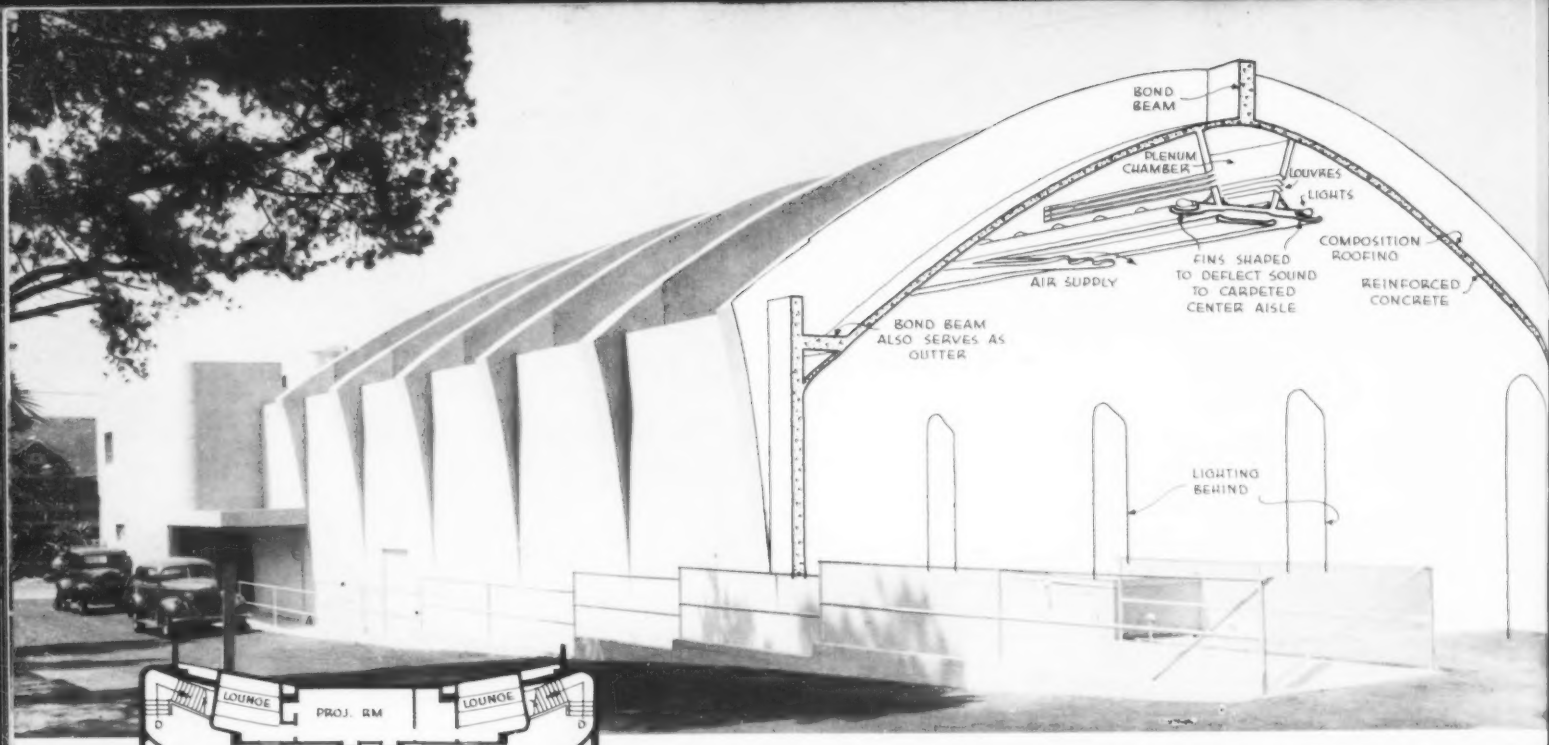
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GOVARNI

## PLANT

which its narrow front faces and from a busy traffic artery on the far side of the bayou that runs parallel with the broad side of the building. The plan provides all necessary offices and ample work space in back. Space is reserved for future installation of air conditioning equipment. Built on a concrete slab, the main walls are of Colorado ledge stone and buff brick, with deep-brown panels of brick between the windows. The stone-course heights range from  $\frac{3}{4}$  in. to 5 in.; lengths of individual stones run up to 9 ft. Steel sash and panels of glass block make up the extensive window areas.

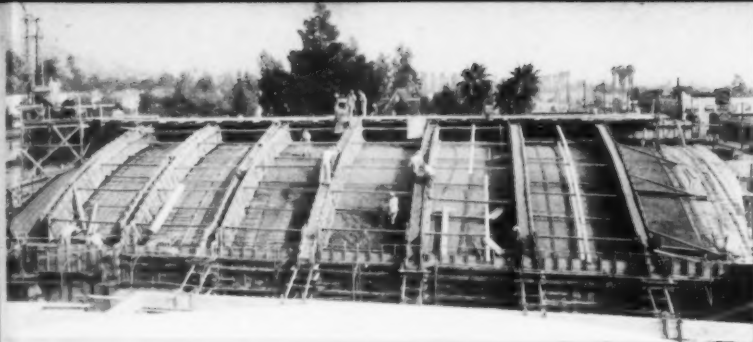




## MOVIE THEATER

**HAWAII THEATER, HOLLYWOOD, CALIF. CARL G. MOELLER, INDUSTRIAL DESIGNER; CLARENCE J. SMALE, ARCHITECT.** This theater is a good illustration of what careful planning and ingenuity in structural design can accomplish. It was originally scheduled as a Class C structure, seating 900. But the collaborators produced—at no increase in cost—a Class A building with a seating capacity of 1,100. In essence, the structural system consists of a series of outside the-envelope arches or portal frames tied together by bond beams at five points: lateral bond beams or lintels at ground level; bond beams at the arch spring lines, and the tie beam joining the crest of the arches. The resultant strong structure is highly resistant to earthquake stresses. The exposed arches expand under atmospheric pressure at the same rate as the shell, obviating internal stresses which occur when structural arches are insulated from outside temperatures by roof and walls. Sizable economies result from the fact that structure and “architecture” are one and the same; in almost every case, elements serve two purposes. The bond beams at the top of the side walls are also the gutters; structural walls serve also as interior walls, with decoration directly applied; the structural beams are the ornamental beams, and ornamental features are both integrated with and serve as adjuncts to the lighting or air conditioning system. An example of the latter is the multiple-use fixture of light steel frame, with metal lath and acoustical plaster furring, which is suspended from the crown of the arch and extends down the center of the auditorium ceiling. In this single element are integrated the air conditioning plenum chamber with louvers at the side; light source and service catwalks. The fixture is also important acoustically. It not only breaks the continuous arch, eliminating reverberations characteristic of barrel structures, but the angle of the air-deflector fins at the bottom is so calculated as to deflect sound down to the carpeted aisle on the floor, where it is killed. The auditorium ceiling and the greater part of the walls are finished with acoustical plaster. Sound is further broken up and controlled by the curved furring around structural columns along the sides.





**CONSTRUCTION.** Economies were effected in construction work by pouring the floor slab first. This was used as the base for the scaffolding, which, with a little additional bracing, was first used as shoring for the structural moulds. When pouring was completed, the scaffolding was left in place to be used by all the trades—electricians, plumbers, painters, etc. Pouring was in three stages: first, walls and columns up to the bond-beam line; second, arches and roof slab to a level two-fifths of the distance from the spring line at each side of the arches; third, central portions of the arches and roof slab, and bond beam at the crest. Pouring was also sectionalized vertically in units comprising two portal frames and the connecting wall or roof slabs, with cold joints between the units.



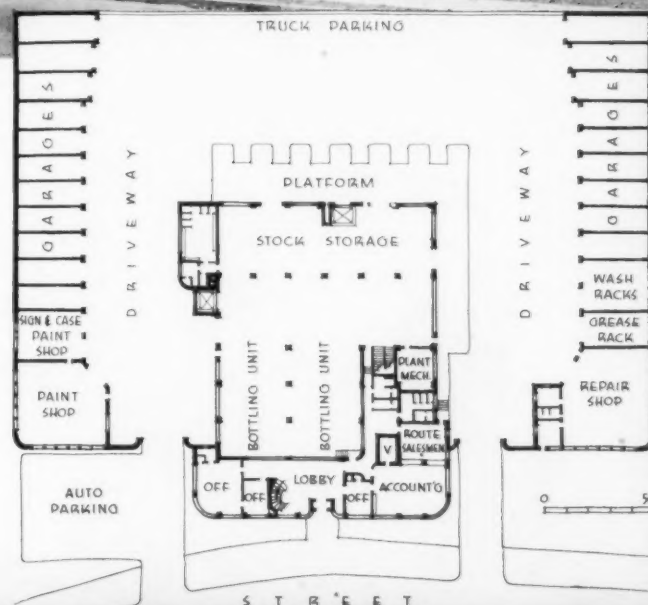
Photos W. P. Woodcock, and Luckhaus courtesy L. A. Times

Continued overpage →



## BOTTLING PLANT

**COCA COLA BOTTLING CO., ASHEVILLE, N. C. HENRY IRVEN GAINES, ARCHITECT.** This sparkling beverage-bottling plant is newsworthy on two counts in particular: 1. It makes extensive use of one of the newest of building materials—a glass-surfaced, load-bearing masonry unit (see next page). 2. It is planned not only to function with maximum efficiency but to impress the public favorably and thus, in itself, to do service as a good-will medium for the product.



Interior photos by Elliot Lyman Fisher

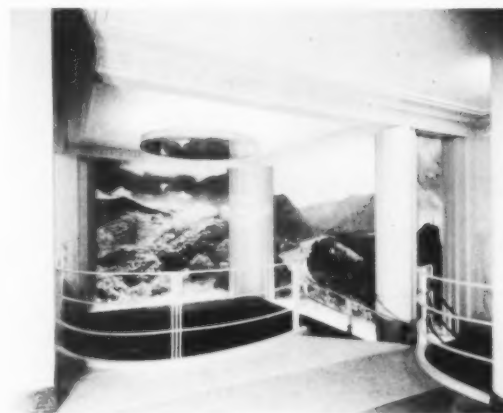


THROUGH LOBBY WINDOWS at right the public views the process

IN THE INTERIOR PLANNING of the building, also, public relations play an important part. One whole wall of the wood-surfaced main lobby is of plate glass. From this window wall, the public may look down on the assembly-line bottling process, which is located on a floor level three feet below. The terrazzo floor of the lobby contains a map of the territory served by the plant.

The bottled product is distributed by company trucks; hence the series of garages and large repair and maintenance shops. The fact that each route salesman is responsible for his own truck explains the use of individual garages instead of a large open storage space. A sizable loading dock is located behind the main work area. Advertising offices, storage rooms, a syrup room and an assembly room with pantry and kitchen occupy the second floor.

The building has a structural steel frame, concrete joists with removable metal pan floor construction, and metal roof joists with an insulated roof slab. The exterior is largely of the glass masonry (detail below). Windows are either steel sash or glass block; trim is stainless steel.



PHOTOMURALS decorate upper lobby



ALUMINUM HANDRAIL; wood veneer ceiling



GUEST LODGE AT GRAVELLY VALLEY, CALIF. MARIO CORBETT, Architect, ALEC YUILL-THORNTON, Collaborator

# VACATION HOUSES

The design of houses for special or seasonal occupancy presents many problems to the architect—necessity for low cubic costs, scarcity of many modern building materials, difficult site conditions; at the same time, such projects ordinarily offer wider scope for imaginative solutions than the typical suburban location. Shown in the following pages are a number of such houses from various parts of the country.





## VACATION HOUSES



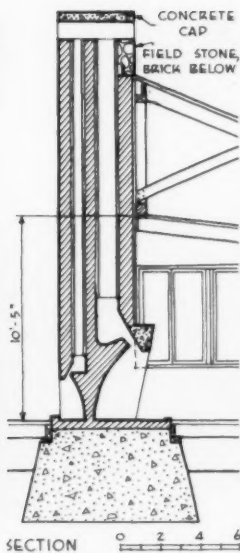
**MARIO CORBETT, Architect**

**ALEC YUILL-THORNTON, Collaborator**

**GUEST LODGE AT GRAVELLY VALLEY, CALIF.** The bold use of natural and processed materials combines to give this house for George Pope Fuller an indigenous character. Masonry is local stone, gathered on the site, its ruggedness relieved by the juxtaposed surfaces of natural redwood, log-oil finished. The roof is of handhewn redwood shakes. The house has no kitchen, as all meals are served in the adjoining main house. Bedroom and living room are combined, at the owner's request. This is compensated for by the large dressing room and bath, which provide ample storage space as well. The large living room opens onto a covered terrace which overlooks a polo field and has a magnificent view of the surrounding mountains. Walls of this room are finished in English harewood and grass cloth. A. Wilbur Woodruff was the decorator.



LUXURIOUS BATH has its own fireplace



DETAILS of living room fireplace

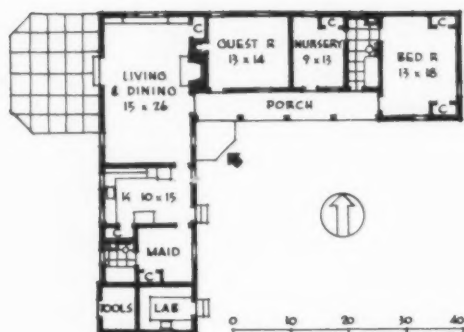
LIVING ROOM looking towards terrace



Photos by Philip Feiss



# VACATION HOUSES



**WILLIAM F. DOMINICK, Architect**

## SUMMER COTTAGE AT NORFOLK, CONN.

A fresh adaptation of traditional forms, the L-shaped plan of this small house is admirably adapted to the site, and has the additional advantage of segregating the three main areas—living, sleeping, and service. The exterior is of white clapboards with green trim and shutters. Bedrooms open off the porch, and have cross ventilation. Note provision of tool room next to dark room laboratory. The interiors are simple; walls and ceilings are finished in wallboard, painted white.

*Photos by Gottscho*



HOUSE, from garden side



TERRACE, opening off living room



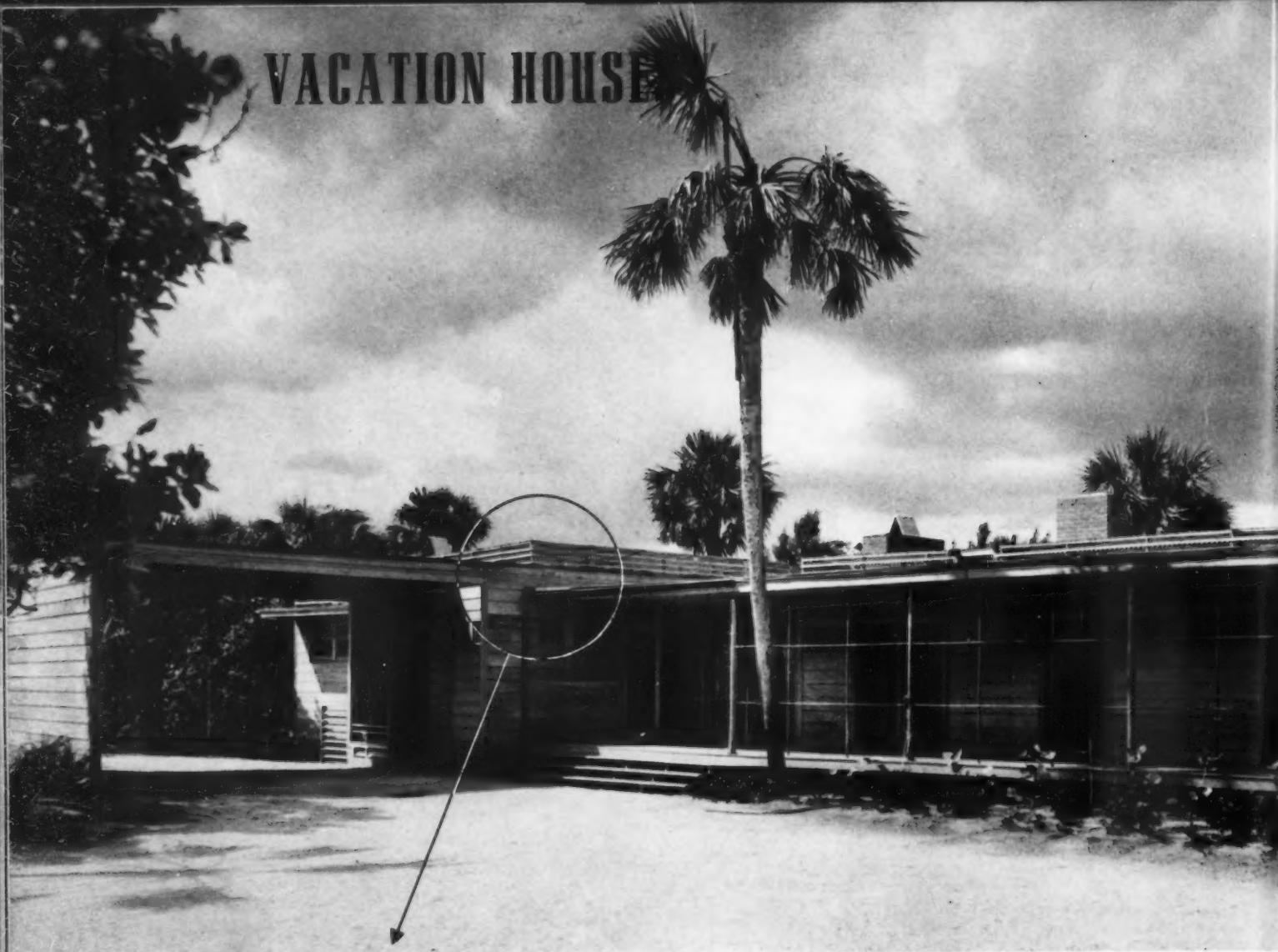


LIVING ROOM

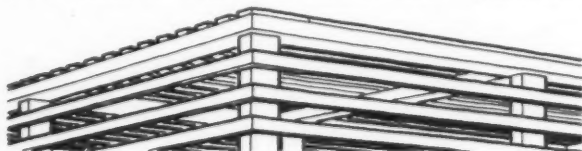


DINING ROOM, showing door to kitchen

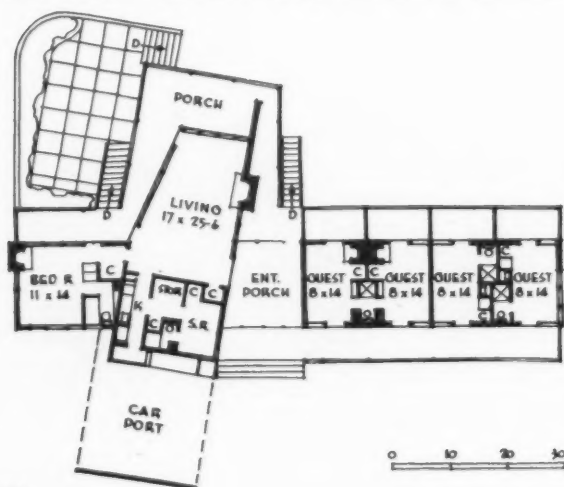
# VACATION HOUSE



1" x 3" SLATS, 3" O.C., 15" ABOVE ROOF, RUNNING EAST AND WEST  
FRAMEWORK 2" x 4"s, 4'-0" APART, RUNNING NORTH AND SOUTH  
WITH 1" x 3" CROSS BRACING APPROXIMATELY 4'-0" APART  
2" x 4" POSTS ON 4" x 6" x 8" BLOCKS AT EACH INTERSECTION



An ingenious wood lattice, 2 ft. above built-up roof, extends over entire house and deflects sun's rays like florist's "lath house"



**ALICE MORGAN CARSON, Designer**  
**VAN DER GRACHT and KILHAM,**

**Associated Architects**

**VACATION HOUSE ON INDIAN RIVER, HOBE SOUND, FLA.** This two-unit plan resulted from the owner's request for a guest wing separate from the rest of the house. To connect the two units the traditional southern breeze-way was introduced and this forms a pleasant living porch. Since most meals are taken at a nearby club, housekeeping arrangements are kept at a minimum. Beyond a desire for something simple but "different," the owner had no preconceived ideas for the design of the house. Construction is frame except for foundations and chimneys; exterior siding is cypress, and interiors are finished in cypress and southern yellow pine. To protect against dampness and termites the house is raised from the ground.

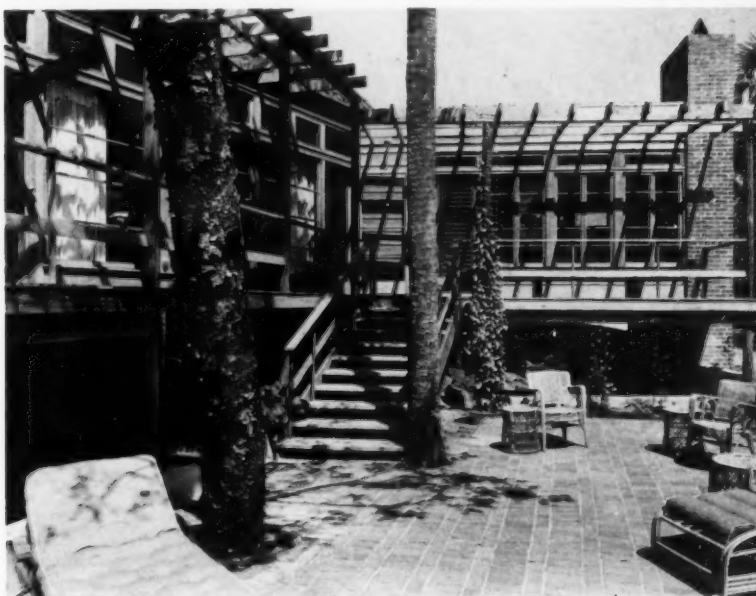




Photos by Gottscho



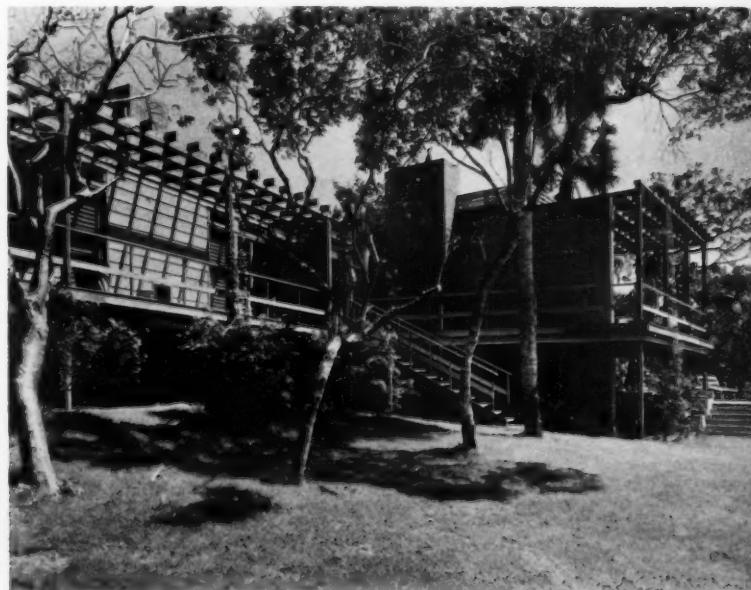
GUEST WING: Note louvered sliding screen doors



LIVING ROOM angle determined by river view



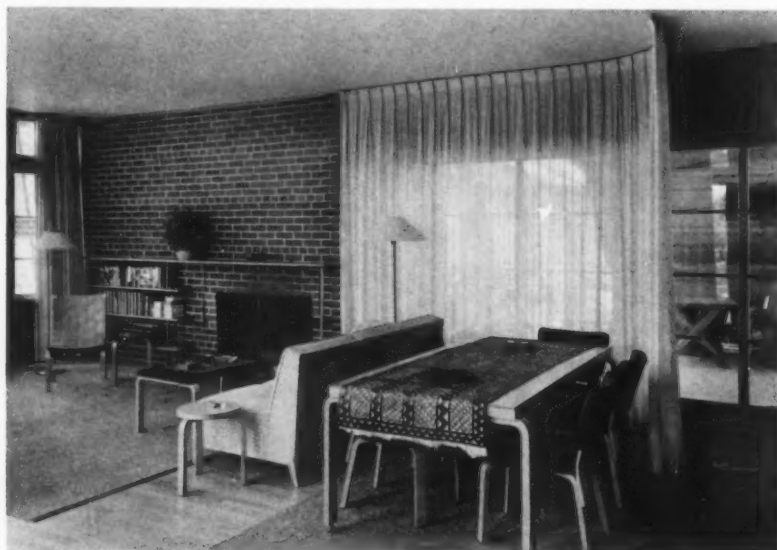
DETAIL of TYPICAL framing



WING WALL of terrace cuts off cold winds

Interiors overpage →





FIREPLACE wall of living room

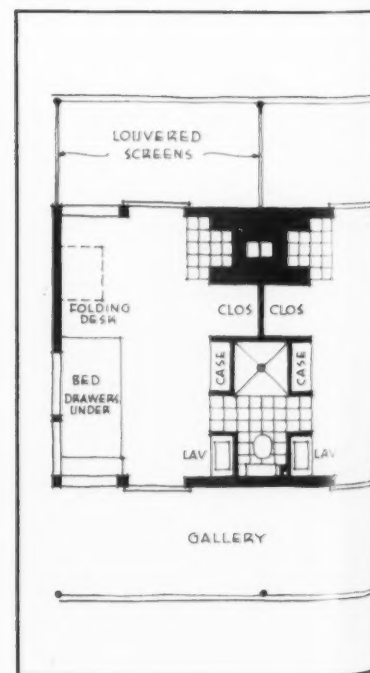


MASTER BEDROOM in main wing



BREEZE-WAY is screened and roofed

Photos by Gottscho





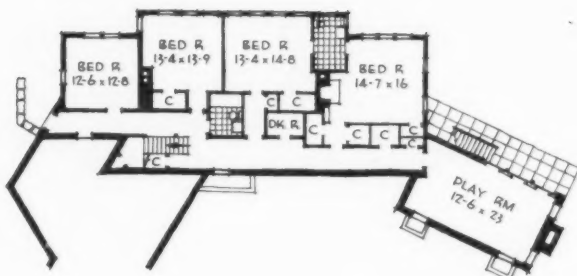
LIVING ROOM commands view of river

GUEST WING provides accommodation for four guests in minimum area

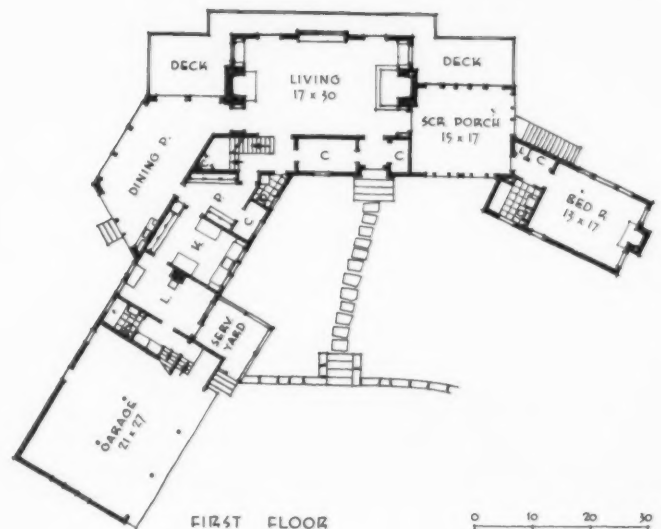




Photos by Richard Garrison



LOWER FLOOR

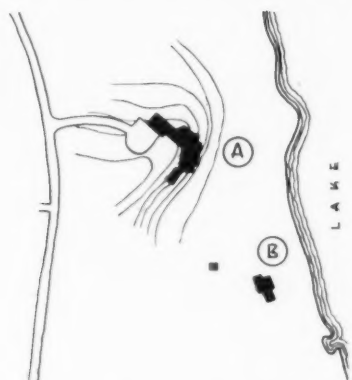


FIRST FLOOR

0 10 20 30



## VACATION HOUSES



CHARLES NUTT, Architect

### MAIN HOUSE (A)

**SUMMER HOME AND GUEST COTTAGE AT SILVER BAY, LAKE GEORGE, N. Y.** Situated on a bluff overlooking the lake, the main house (A) is two stories high on the entrance side, but increases to three stories at the rear. A feature of the house is the provision of large deck and porch areas for outdoor living. The plan organization is simple, with the service area in a wing, living area in the center overlooking the bay, and ample sleeping space supplemented by the third floor dormitory. All main living areas overlook the lake. Construction is frame, with wood shingle siding and composition roof.



DINING PORCH: exterior



DINING PORCH: interior

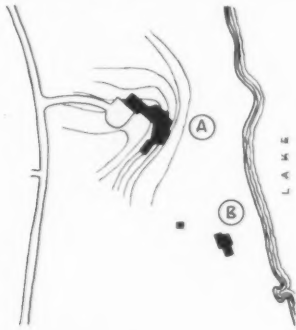
Guest house (B) overpage →



LIVING ROOM: stairs lead up to dormitory, down to bedrooms

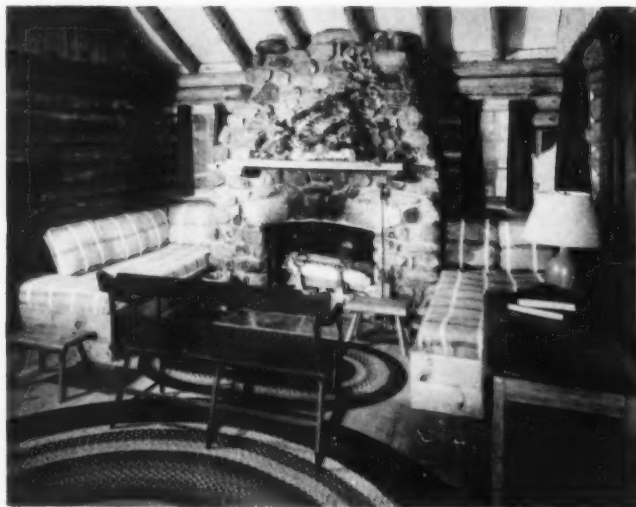
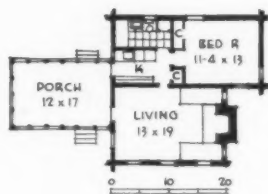


BEDROOM

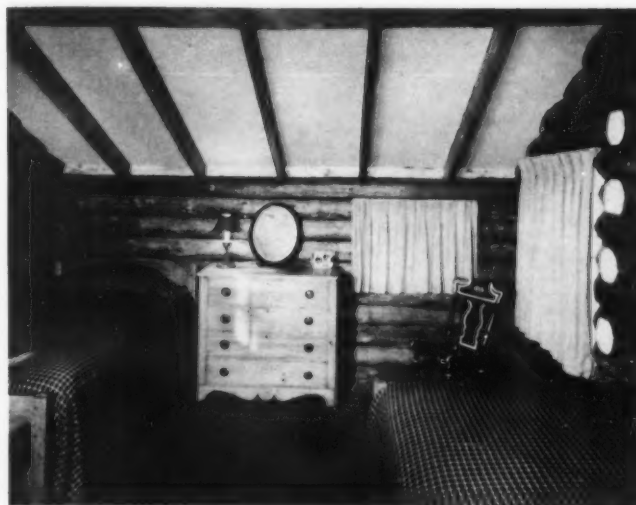


## GUEST HOUSE (B)

Nearby, just down the hill from the main house, is this log cabin which accommodates additional guests. Its location in the middle of a grove of pine trees makes the use of rugged materials particularly appropriate. The screened porch acts as an outdoor living room, and the living room can be used to house two additional guests. The cabin is of typical log construction; ceiling beams are of rounded logs, with wallboard filling the interstices.



LIVING ROOM



BEDROOM



LIVING PORCH

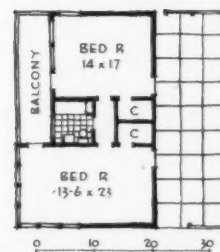
Photos by Richard Garrison

Photos by Roger Sturtevant



## VACATION HOUSES

BEDROOM showing cantilevered window bay

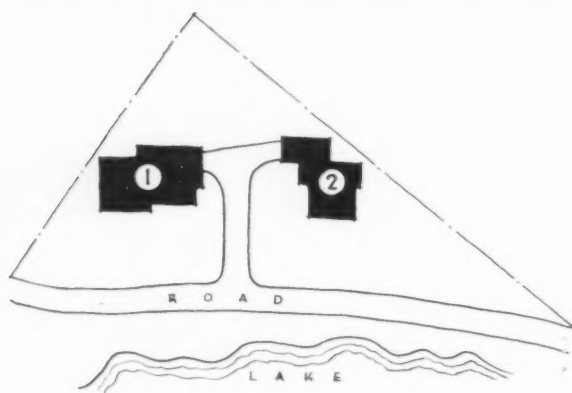


### WILLIAM WILSON WURSTER, Architect

**GUEST HOUSE NEAR GILROY, CALIF.** This two-bedroom house, located not far from the main house, overlooks a fine valley view. To take advantage of this view the architect provided floor length windows on that side of the house and a balcony, which is cantilevered out over the hillside. No kitchen was provided as the meals are served at the main house. The exterior is of redwood board-and-batten construction. The basement contains a water heater, and storage space. The extremely simple plan lends itself to easy adaptation.

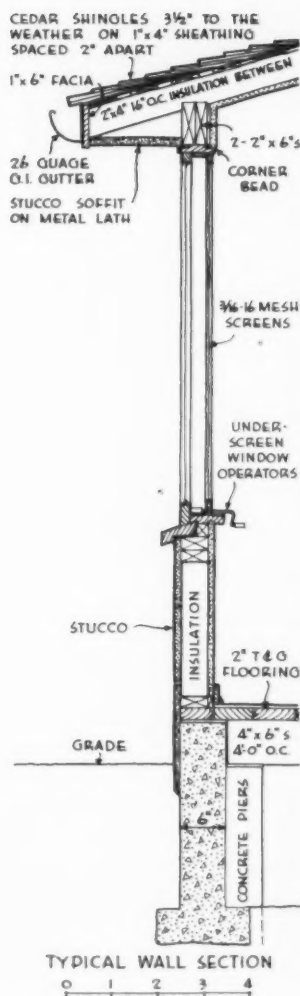


# VACATION HOUSES



**VAN EVERA BAILEY, Architect**

**TWO SUMMER COTTAGES AT LAKE OSWEGO NEAR PORTLAND, ORE.** These two cottages, situated on adjoining lots and overlooking the lake, were built for rental. They are of identical construction—stucco on metal lath—and are designed for minimum first and maintenance costs. One interesting feature is the floor construction (see section at right) which—instead of the usual sub-flooring laid on joists on 16-in. centers—employs 2-in. tongue and groove flooring laid on 4-by-6-in. beams, 4 ft. on centers. Another feature is the architect's elimination of interior trim by an ingenious use of metal corner beads.



HOUSE No. 2

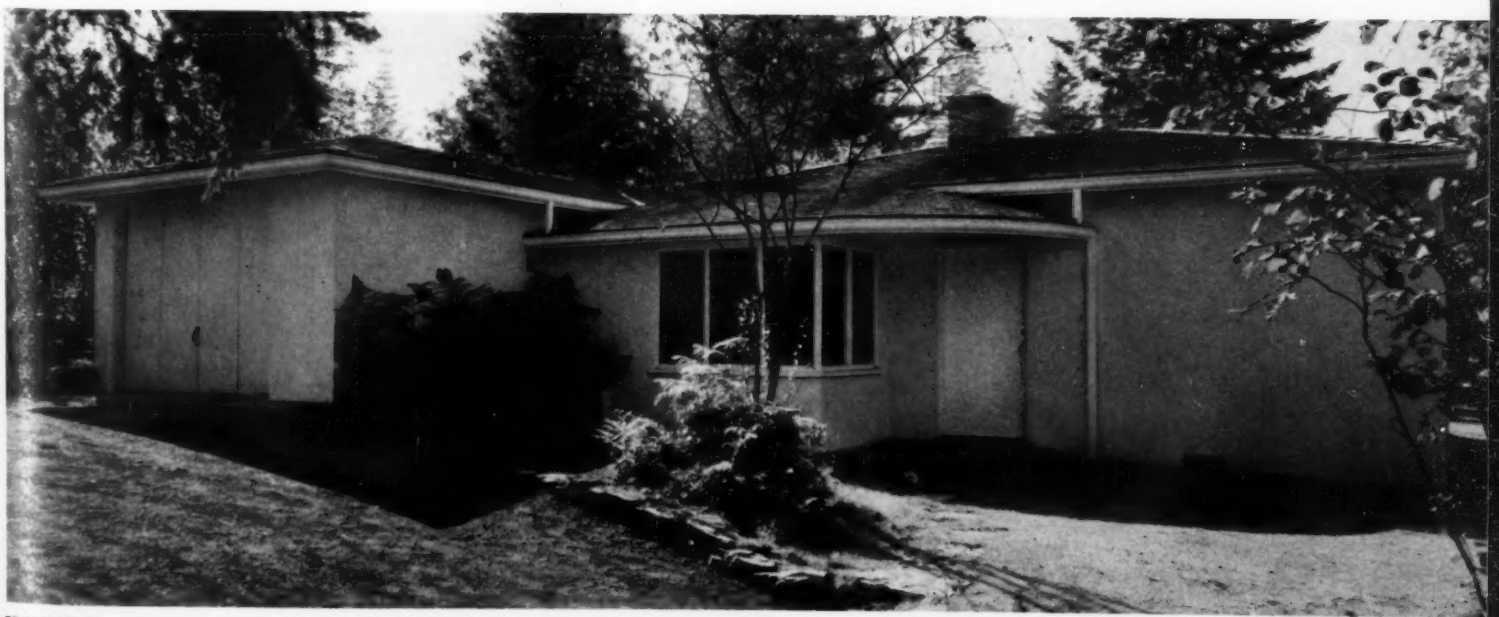


Photos by Roger Sturtevant

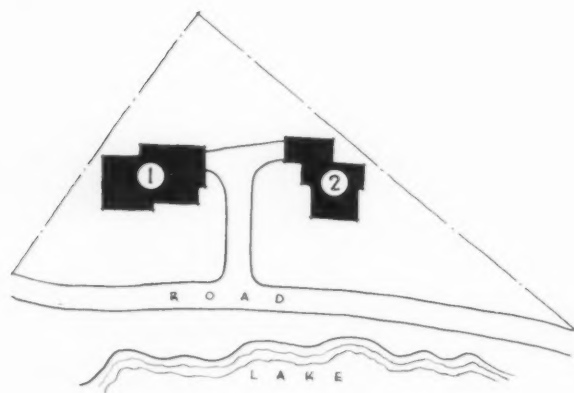
HOUSE No. 1



HOUSE No. 1



HOUSE No. 2



PORCH serves as guest room



LIVING ROOM toward dining alcove



WINDOWS in living room overlook lake

# ← HOUSE NO. 1

SOMEWHAT LARGER than its companion, this house provides two bedrooms and a glazed porch which can be used for over-night guests, in an unusually economical plan. All doors and windows are without trim; all walls are plaster, except living room fireplace wall.





DINING-KITCHEN AREA



SERVICE ENTRANCE

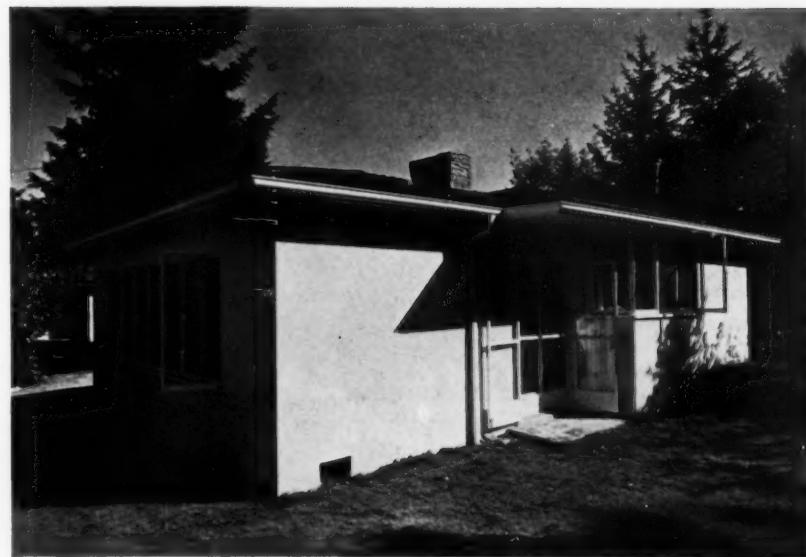


## HOUSE NO. 2 →

A CHANGE in floor level is neatly accomplished between living room and dining areas at the fireplace, while the single bedroom—with its large closet and bath—is on same level as living room. Construction and finish are identical with that of house No. 1.



LIVING ROOM fireplace

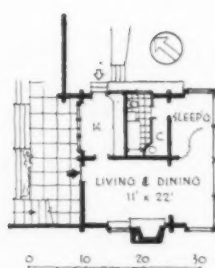


LIVING ROOM doors

Photos by Emil Senkewich



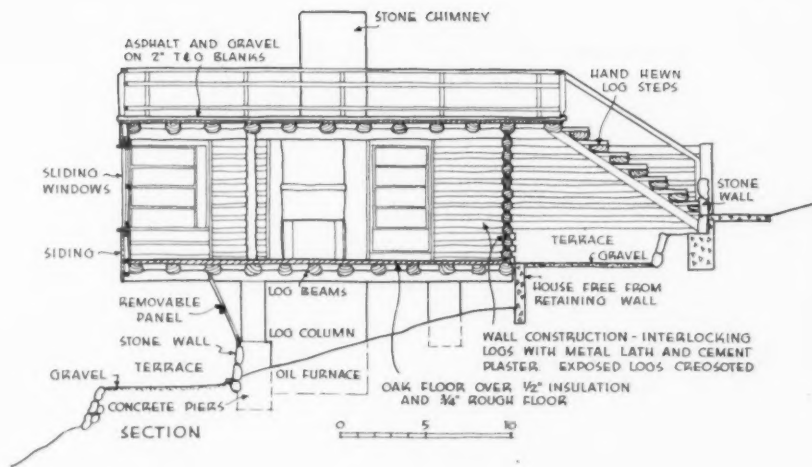
## VACATION HOUSES



**ALFRED CLAUSS and JANE WEST CLAUSS, Designers**

**LOG HOUSE IN LITTLE SWITZERLAND NEAR KNOXVILLE, TENN.** A somewhat adventurous use of native materials—hand hewn logs and masonry of local stone—marks this weekend cottage. According to the designers, "The basic design is a playful arrangement of interlocking log walls supporting an overlook and play terrace. This structure rests on six massive concrete piers and is cantilevered over the hillside." The exterior is made up of hand hewn logs, creosote-stained; light gray plaster, and rough stone-work. Flush siding on the overlook is painted light gray. Sash, doors and trim are of natural redwood.





LIVING ROOM

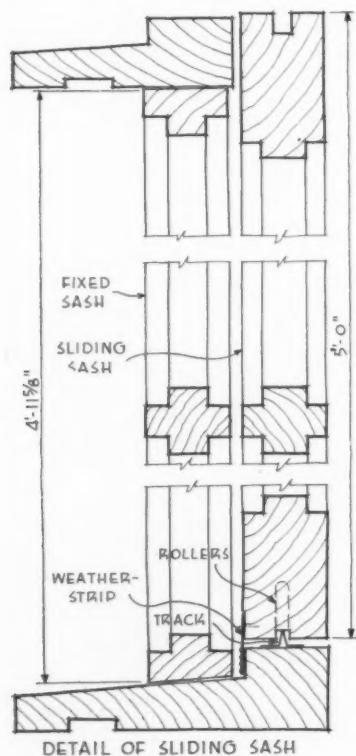




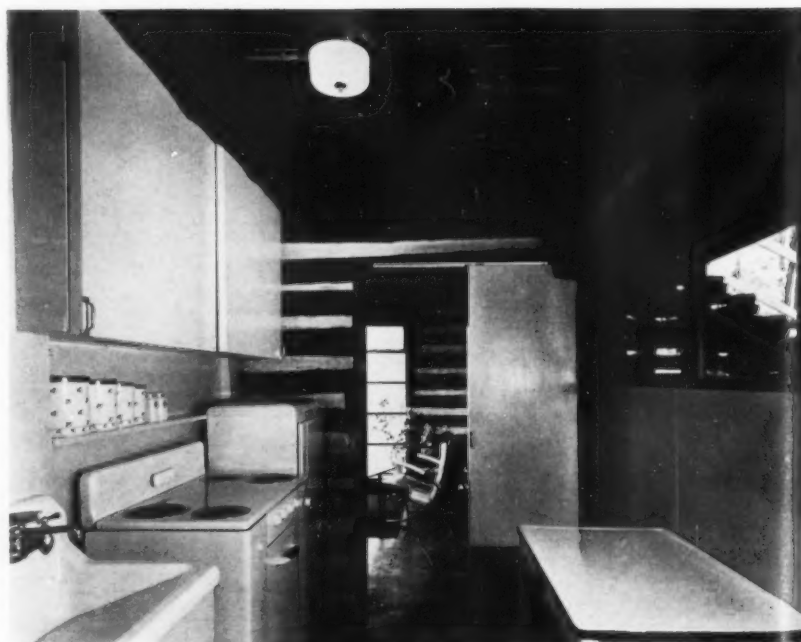


Photos by Emil Senknecht

OVERLOOK: Note that large windows slide on show case track



DETAIL OF SLIDING SASH



KITCHEN looking toward living room. Doors and cupboards slide on light weight roller track; stock trailer-type projecting windows provide ventilation here

Most for least in houses has always been one basic objective of both architect and client. And in the search for that ideal the factor of cost has often loomed large as a practical barrier to the owner and as a stumbling block to the architect conscientiously seeking to provide a true economy and high value in construction and equipment.

These difficulties often have arisen because cost in terms of price has been confused with cost in terms of value. They are not the same. The first is static and arbitrary; the second, pro-

## BETTER HOUSES CAN COST CLIENTS LESS

gressive and relative. The necessity for clearly differentiating between them is growing greater as long-term amortization becomes more generally the accepted method of house financing. Today the monthly cost of living in a house is the popular—and essentially correct—measure of true economy and value. And more and more the architect has the responsibility of convincing his client that too often the low price of a unit forecasts a high cost of using it; and that cheap building products are the will-o-the-wisps that lead to jerry-building and higher living costs.

This article offers one effective means of attacking this everlasting cost problem. It suggests that the usual method of cost determination be reversed—that the monthly amount required to operate, maintain and pay for a house be regarded as the prime factor of cost control; and that the prices—or "first costs"—of structural and equipment items be established only on the basis of their long-term cost-of-use in relation to the client's budgeted monthly expenditure.

As a principle of sound business procedure this approach to cost analysis is as old as history. To many architects—and to the majority of their clients—it may be novel as applied to the residential field.

Presented here in broad terms this business-like method of construction cost analysis is subject to a wide variety of adaptation as circumstances may determine. From time to time the RECORD will report on its application in more specific instances and hopes thereby to clarify the problem of designing with dollars—the business side of the practicing architect's professional equation.

The author—known to RECORD readers as a former contributor and editor of the National Real Estate Journal—and the editors gratefully acknowledge the able technical assistance of Lawrence B. Perkins of the Chicago architectural firm of Perkins, Wheeler and Will.

By EMERSON GOBLE

IN DEALING with clients it is no longer realistic to discuss building costs solely in terms of original price. Modern financing has significantly changed all that. Something new has been added to the old saw, "It isn't the first cost, it's the upkeep." And that something new suggests the serious consideration of a different approach to cost problems.

What has been added to the old truth is easy, long-term financing for residential buildings. Now that houses can be financed under monthly-amortized loans extending over periods of 15, 20 or even 25 years, with down payments of as little as 10 per cent, first cost has lost its dominance. The architect and client can therefore think of building costs in terms of true long-term economy instead of limiting their plans to the client's immediate ability to meet lump-sum costs. As a result the client need not consider himself too poor to afford structural and equipment items that will make his house not only more livable and more valuable but actually less expensive through the years.

### Technique for cost analysis

This situation suggests that the architect might well develop a new technique for the analysis of cost problems, to the benefit of both himself and his client. Stated in a few words, this technique proposes that, on certain questioned items in the specifications, costs be compared over the period of the mortgage,

including besides the original price the costs of operating, maintenance, financing, and so on. Thus would a true measure of economy be found, which would justify a more flexible limitation on first costs.

A moment's examination of this cost thesis suggests several benefits that should be forthcoming. First, benefits to the architect: Primarily the architect would be freer to consider materials and equipment specifications on the basis of true *value* rather than mere *price*—and thus freer to build better buildings for his client. Perhaps he cannot save everybody from the clutches of the jerry-builder, but he should be able to capitalize at least to a certain extent on his professional ability to find the solution that represents true economy.

#### Long-term economy theme

Beyond that, the development of the long-term economy theme should enhance the professional standing of the architect and broaden his usefulness—with, for example the realty operator and the mortgage banker, to both of whom the buyer's living costs are of direct and long-lasting interest. The fuller understanding of long-term costs should also tend to lessen the need for open or vague

specifications, and to prevent substitutions of cheaper, less suitable products. All in all, the interpretative analysis of long-term costs should be an important aid to the architect in selling his professional services.

#### Price confused with cost

From the client's standpoint, the advantages are equally obvious. Cost analysis on a long-term, periodic payment basis may prove that the client can afford a better house with more living conveniences than he thought possible, a house actually more economical in operation and final cost. It will not always be true, of course, that the best costs less, or that the client can afford every gadget he wants. But somewhere between the high that represents simple extravagance and the low that means excessive operating and maintenance costs is the proper building for him. It is the function of this method of cost analysis to find the optimum cost of construction.

Surely the basic premise is clear. Summarized for a client, however, it might go something like this:

Many of the cost barriers in residential construction are actually more apparent than real. They arise because the *price* of construction is too often confused with its *cost*. A

low price does not necessarily correspond with a low cost because the *true cost* includes not only the initial price of a unit of construction or equipment, but also the expense of using it—the cost of its operation and maintenance over its useful life.

Thus the financial emphasis is shifted from original price to long-term cost of owning and operating the building. Clients might be shown that in view of today's financing methods they actually are not as much interested in lump-sum first costs as they are in monthly payments. This approach to building costs is merely an analysis of those payments—including the monthly costs of living in the building, heating it, maintaining and redecorating it, depreciating it, as well as simply paying for it. Surely that today is the final measure of residential costs; and it should also be the means of measuring the first cost of construction and equipment units.

#### Cost calculating method

The cost calculating method below is not suggested as being any simpler than the struggle to cut first costs to the bone. It may well require just as many kilowatt-hours of midnight oil. But it should produce a better, surer result.

### VALUE FROM THE MORTGAGE LENDER'S VIEWPOINT...

DONALD K. VANNEMAN, now the New York mortgage loan correspondent of the Canada Life Assurance Company and formerly Chief of Supervision, Indemnity Section of FHA, is, at the same time, a conservative appraiser of mortgage risks and a vigorous foe of jerry-building. Speaking last month before the Philadelphia Chapter of the American Bankers Association, Mr. Vanneman stressed the importance of operating and maintenance costs in establishing a practical basis for mortgage financing. The fol-

lowing paragraphs are excerpts from his address:

"The operating and maintenance cost of the equipment vitally affect the borrower's ability to pay, as well as his willingness. For instance: A poor quality heating plant or one improperly designed to suit the heating requirements of the building may affect fuel costs by as much as 50 per cent. There are actual recorded cases where the heating of a six room house was reduced from \$150 to \$75 per annum after installing a properly efficient

heating plant and insulation.

"What this means to the lending institution may well be realized if the capitalized amount of the savings of \$75 a year, or \$6.25 per month is related to the total amount of the mortgage. This monthly amount of \$6.25 would retire a capital sum of \$1,000 in eighteen years and eleven months with interest at 4 per cent. If it is considered that the typical small house mortgage averages \$5,000, this monthly saving would repay *one-fifth of the total mortgage loan*, and would further



What are the calculations involved, and how do the items line up?

The principal cost elements taken into account include: first cost, operating, maintenance, depreciation, financing costs and total. *Operating costs* for a complete house would, of course, include many items—heating, domestic hot water, gas and electricity, insurance, water, waste disposal, and possibly others. *Maintenance costs* would involve repairs of many items, exterior and interior redecoration, servicing of structure and equipment, and so on. *Depreciation costs*—perhaps the most difficult to measure—are particularly interesting as a measure of relative worth of many elements of the building over a long period; and they provide also an estimate of things as they affect resale value or the value remaining in the structure after its mortgage is fully retired.

#### Long-time comparisons

The number of separate items under these classifications would be surprisingly long if worked out for a whole building, and cost calculations would likely get pretty involved. What the architect is most interested in, however, would not be a full calculation for a complete house, but

rather long-time cost comparisons of certain things—two types of wall construction, perhaps—in first cost, operating, maintenance, depreciation, finance. He might well work out the comparative costs over a 20-year period (corresponding to the life of the FHA mortgage), then perhaps reduce the results to monthly figures representing total costs to the client.

#### Local costs all-important

There are many structural, finishing, and equipment items which should yield up interesting facts when so analyzed and compared. Types of wall construction, exterior and interior finishes, questions about insulation, heating plants and controls, choice of fuels, adequate wiring, kitchen cabinets and equipment, windows and storm sash, and many others. Obviously the method would be unnecessary for many items and indeed could be carried to the absurd.

It is to be expected that local costs will be all-important in any calculations and comparisons, and it is thus impossible to apply any generalizations without individual checking for a given locality. Fuels will vary widely in different territories, freight rates, distributional arrangements,

local building codes, labor practices and costs—all will affect costs of materials and products and installation expenses, as well as maintenance and operation costs. Even such an item as depreciation will be affected to a certain extent by local conditions of exposure, and even by local customs of use and occupancy.

It should not be necessary, either, to warn against jumping to too definite conclusions, even after local circumstances are taken into account. It is quite apparent that the projected use and occupancy of a particular building will greatly affect the result—the size of the family, number of children, expected term of mortgage or occupancy, possibility of resale, etc. The final specifications as to many items, drawn in one way for a specific house, might come out quite differently for a house on the next lot, on the same basis of long-term economy.

#### Sample calculation

On the other hand it might be well for the estimator to work out a few typical calculations that could be accepted as more or less standard, or at least as normal.

The two tables on page 80 show the method in a sample calculation. These tabulations represent an effort

represent approximately 12½ per cent of the total monthly payments of such a typical borrower. Similar savings, although smaller in amount, may be realized in the maintenance and replacement costs of other durable equipment such as cabinets and ranges.

"It is certainly of vital importance to understand that the quality of the equipment installed should in all cases be considered in the value estimate. However, in consideration of quality with reference to cost one all-important factor must not be overlooked.

The lending institution must consider that the excess cost for quality equipment in relation to the type and price class of the property must be reasonable as compared with a typical similar property.

"This word 'typical' is probably one of the most important words used in connection with correct valuation procedure and cannot be emphasized too strongly. Typical does not mean 'average' but refers to the general price and class quality that will have the greatest general market appeal.

It would obviously not be typical for a house costing \$3,000 to have an added \$1,500 worth of special equipment, because the typical buyer in that market would not be willing to assume the extra expense, although it might be possible to find a few individuals willing to do so. On the other hand, a \$6,000 house might well have \$750 worth of quality equipment which would be considered as reasonable and fairly typical, with the result that the full extra cost might be reflected in the valuation."

## SUB-STANDARD CONSTRUCTION... vs ... GOOD CONSTRUCTION • 2" INSULATION



FIRST COST OF STRUCTURE	\$2,000
OPERATING	2,880
MAINTENANCE	1,095
DEPRECIATION	1,400
FINANCING	838
<b>TOTAL</b>	<b>\$8,213</b>

## DETAILED SUMMARY

<b>FIRST COST OF STRUCTURE</b>		
Rough Carpentry		
Material	\$550	
Labor	1,100	
Lathing and plastering	350	
		<b>\$2,000</b>
<b>OPERATING COST</b>		
Heating estimate		
\$12/mo. x 240 months		<b>2,880</b>
<b>MAINTENANCE COST</b>		
Assume decoration 6 times @ \$150	900	
Repair foundation once, estimate	75	
Jack up floors and replace two wood posts	50	
Add steel beam to correct deflection	45	
Refit doors after settlement	25	
		<b>1,095</b>
<b>DEPRECIATION</b>		
\$2,000 @ 3½%/yr., 20 years		<b>1,400</b>
<b>FINANCING</b>		
90% loan; 4½% interest, complete amortization in 20 years, and FHA insurance premium; @ \$6.57/\$1,000/mo. for 240 months		<b>838</b>
<b>TOTAL</b>		<b>\$8,213</b>



AVERAGE MONTHLY **\$34.22**



FIRST COST OF STRUCTURE	\$2,520
OPERATING	2,580
MAINTENANCE	480
DEPRECIATION	1,260
FINANCING	1,056
<b>TOTAL</b>	<b>\$7,896</b>

## DETAILED SUMMARY

<b>FIRST COST OF STRUCTURE</b>		
Rough Carpentry		
Material	\$700	
Labor	1,250	
Insulation	120	
Lathing and plastering	425	
Basement steel	25	
		<b>\$2,520</b>
<b>OPERATING COST</b>		
Heating estimate		
\$10.75/mo. x 240 months		<b>2,580</b>
<b>MAINTENANCE COST</b>		
Assume decoration 3 times @ \$150	450	
Minor repairs	30	
		<b>480</b>
<b>DEPRECIATION</b>		
\$2,520 @ 2½%/yr., 20 years		<b>1,260</b>
<b>FINANCING</b>		
90% loan; 4½% interest, complete amortization in 20 years, and FHA insurance premium; @ \$6.57/\$1,000/mo. for 240 months		<b>1,056</b>
<b>TOTAL</b>		<b>\$7,896</b>



AVERAGE MONTHLY **\$32.90**

20 YEARS

to compare two types of frame construction, sub-standard versus good quality.

If it should ever prove necessary to demonstrate the difference between sound construction and what might be called jerry-building, such a cost analysis ought to prove effective with a client. By getting the better house he actually saves \$1.32 a month. The difference in first cost, representing the difference between a well-framed house and a poor one, is but \$520. What that means to the client, assuming his down payment is 10 per cent, is that he has to raise \$52 more to start with—after that he saves \$1.32 a month for all of the years he occupies the house.

It will be noticed, in these tabulations, that this analysis is for the 20-year period of an FHA mortgage (it might be 15 or even 25 years) and assumes a 10 per cent down payment. It is important to remember in any analysis of this kind that all costs are prorated and combined in monthly sums to include both mortgage payments and living costs, and that after the mortgage is retired the owner's living costs would be

considerably reduced. The advantages of the better-built, better-equipped house continue long after the mortgage has been amortized.

It is necessary in any calculation of this sort to make some rather arbitrary assumptions. Nobody knows, for example, how many times a poorly constructed wall will be redecorated in 20 years. Everybody knows, however, that plaster cracks will develop, and lath marks will show quickly in the uninsulated house; thus if it is to be reasonably well maintained the poorer house will be redecorated more often than the good one. However these costs come out, it is the method that is important.

Heating is one field of inquiry in which the range of possibilities will be exceptionally wide. If costs were the sole object, the choice of fuels would, of course, be of first importance. Beyond that, however, there is considerable range in different types and grades of heating equipment. Furnace efficiencies may vary as widely as 45 to 70 per cent. Rules of thumb as to cost limits are particularly dangerous here. There is an old idea, for example, that the

cost of the heating plant should bear a definite ratio to the cost of the house, say 10 per cent. Any consideration of long-time costs soon breaks down any such arbitrary idea; indeed it is logical to assume that the home buyer with the small income is more interested in operating economies than the one who rates in the higher brackets.

As an example of how this reasoning might work out over the 20-year analysis a typical calculation of heating costs is given below. It compares the cheapest possible heater with one of the most expensive. The cheaper one is assumed to be a furnace with a conversion-type oil burner, with a heating efficiency of 50 per cent. The better one is a high-quality furnace rated at 70 per cent, burning oil of the same grade and cost.

As the tabulation indicates, total 20-year costs show a monthly saving of \$1.55 over the full life of the building. This is still, of course, just a sample calculation, but surely it shows the vital importance of long-term cost analysis.

This monthly saving may become even greater depending upon how

These tabulations represent merely a sample calculation to suggest one way of setting up this method of cost analysis. Figures on facing page do not indicate all items of construction and equipment, but refer merely to costs incident to the framing and heating—this last because of the influence which use of insulation has on heating costs of the better-built house. . . . Many of the assumptions made could be argued one way or the other. The costs are but estimates (for the Chicago territory) and are not to be taken as in any way conclusive. The cheaper house assumes cheap material. Maintenance costs are estimated on the basis of keeping a poorly framed house in reasonably good condition. All depreciation percentages are purely arbitrary assumptions designed to show some variation in the overall life of the two buildings. Financing costs are regular FHA mortgage rates for a 90 per cent loan. The better house was given cost figures for good sound framing—including a steel beam—and insulation. First costs are necessarily higher for both materials and labor; and on the basis of expenditure this house is assumed to cost less to heat, redecorate and repair.

## 20-YEAR COMPARISON OF CHEAP vs. HIGH-QUALITY FURNACE

	Cheap Furnace with Conversion-Type Oil Burner	Best Quality Oil Furnace
FIRST COST	\$175	\$400
OPERATING*	\$3,000	\$2,220
MAINTENANCE**	275	200
DEPRECIATION***	155	320
FINANCE	249	568
TOTAL	\$3,679	\$3,308
MONTHLY	\$15.33	\$13.78

### SAVING \$1.55 PER MONTH

\*Assumes 50% efficiency for the cheap burner; 70% for the better one.

\*\*Assumes replacement of the cheap burner after 10 years, \$75; assumes 25-year life for the better furnace and burner.

\*\*\*Assumes depreciation of 80% on the better furnace; 80% also on the cheaper, except for extra depreciation of burner unit.



well and how extensively a house is insulated. Much technical information is, of course, available on use of insulation; but field tests have recently translated theoretical heat-saving values into cost terms.\* For example, *Paul M. Tyler*, engineer of the U. S. Bureau of Mines, reports that field tests on house insulation conducted by the TVA revealed that "complete wall, floor and roof insulation may cut the fuel bill of a typical house in a relatively moderate climate as much as 44.75 per cent. The tests indicated that the saving might be increased to 50 per cent."

Again *John B. Rodee* of the J. B. Pierce Laboratory of Hygiene is the authority for the statement that "it will cost \$75 to heat a small insulated house in Madison, Wis., but heat plus deferred payments on insulation with full-thick mineral wool will cost only \$42 annually for the same house when paid for like the rest of the house over a 20-year period including interest. This means a saving of \$33 a year until the loan is paid off, after which the saving goes up to \$42."

## Inadequate wiring system

Take wiring systems for one further example. In brief the background information on electrical systems for residences goes something like this:

An inadequate wiring system is first an annoyance merely because it lacks sufficient service outlets. Equally annoying—but also expensive and wasteful—is the poor performance of electric devices when the voltage is uncertain or definitely too low. Poor voltage is, of course, another result of inadequate wiring, for the conductors are overloaded and the voltage drop due to resistance in them is excessive.

There is an actual loss of power in overloaded conductors. In a lamp that may only mean insufficient light (a drop of 10 volts below rated voltage means a light loss of 31 per cent, and a waste in current cost of 15 per cent), but it also might mean that a larger lamp must be

used. In a heating unit, such as a toaster, it means a definite economic loss, for the toaster must operate longer to toast the bread. Some types of motors operate fairly well under poor voltage, but still there is the loss of current in the overloaded wiring.

## Savings pay for good wiring

It becomes difficult to calculate such actual losses over a long period, because of the obvious difficulty in weighing the several factors in the use of various equipment. A general statement has been made, however, that adequate wiring will pay for itself within five or six years in actual savings. In other words, the difference between the cost of an adequate wiring system, and one that won't quite do the proper job should be made up in savings in that time.

It is apparent that on this realistic basis of long-term cost analysis the architect can decide just where to draw the line in including the several items the client might want. It will be found that many things that seem too expensive will actually turn out the cheapest. Other items that appear economical will be found just the opposite. At any rate, when all the returns are in, the architect will discover how to use the available monthly budget to secure the maximum of comforts, conveniences and gadgets that make for better living. And, what is still more important, the client is not saddled with a cheap building that later proves very expensive.

## Justifies better building

On that score the architect is entitled to his own satisfaction with the better building. Viewed in another light, the whole idea of long-term cost study is a means of justifying, in the client's mind, the better building that the architect always seeks to build. If it does that, it should secure for the architect many jobs that seem impossible to get in the everlasting struggle of costs vs. budgets. And thus it should considerably broaden the architect's usefulness in the residence field.

\*For ASHVE comparison of calculated and actual savings see p. 116.



Ewing Galloway



Courtesy Starchroom Journal

# SERVICES FOR SALE

The American retailer is primarily a salesman of mass-produced goods; but most products of the machine age, and many personal needs, require repeated "servicing." In such fields the craftsman, the technician, the professional man still have direct contact with the buying public.

The 1940 census reveals that, in 1939, 645,966 such service establishments did nearly 3½ billion dollars worth of business. Laundries produced over one-eighth of this total. The census covered shops for personal services, such as beauty shops; business services, such as advertising and sign painting establishments; transportation services, including auto repair shops; other repair industries; custom industries; and others ranging from circulating libraries to tree surgery services. Not all of these merit architectural consideration, but most would benefit from such attention. And, no matter what turn world events may take, the need for service continues.

## A BUILDING TYPES STUDY

By MORRIS KETCHUM, JR., Architect, in collaboration with the Editors of *Architectural Record*

The Editors wish to acknowledge assistance from *Automotive Merchandising*, *Laundry Age*, *Starchroom Laundry Journal*, and others.

# BUILDINGS FOR SELLING

## THE WHAT AND WHY OF THE DRIVE-IN BUSINESS

- American industry has attained a high point in production efficiency—but distribution has lagged far behind;
- 59c of the consumer's dollar goes for distribution—41c for production;
- Customers brought to market by automobile offer an ideal opportunity to reduce distribution costs;
- The "Super-Market" in the grocery field is a well-known successful attempt to reduce distribution costs;
- These markets draw customers from wide areas, from all segments of the population, and are most successful when combined with "drive-in" parking;
- In all businesses following the "drive-in" principle, the burden of distribution has been shifted to the consumer—eliminating costs of pick-up and delivery;
- This has resulted in cash savings for the consumer, more profit for the merchant.
- Many service stores—laundries, dry-cleaning establishments, road-side flower markets, auto-service stations and other branches of business activity—have thus linked sales and distribution to the auto age.



1



2

1, Lath Sales House, Sunnyside Nursery, San Anselmo, Calif.; Hertzka & Knowles, Archts. 2, Wilshire Mayflower Shop, Los Angeles; A. C. Martin, Archt. 3, Zinke's Drive-in Shoe Repair, Los Angeles; H. O. Sexsmith, Archt. 4, Optometrist's Shop, Jamaica, N. Y.; N. R. Ginsburg, Archt. 5, Goubaud's Beauty Bar, New York City; Karpus & Spelman, Designers. 6, Gasoline Service Station in Texas with slanted glass to eliminate reflections, venetian blinds to protect customers from sun. Photos by Sturtevant, Berné, Gottschö, Garrison, St. Thomas, Libby-Owens-Ford

3



4





# SERVICES OFFER UNIQUE DESIGN OPPORTUNITIES

**G**ONE ARE THE DAYS of the craft shop when all goods were both made and sold under one roof. Only in the field of the service store are the dual functions of personal production and salesmanship still on view in the same establishment. Here the public buys services and goods that once were the results of home industry.

This fact gives the service store a tremendous initial advantage in the struggle for patronage: the average retailer's display opportunities are limited to stationary merchandise, however dramatized. *The service store can place a living product on view—human labor.*

This opportunity to display human activity can be translated into powerful advertising, when allied with good design. The modern retail store front combines the functions of a billboard to identify the owner's business, a display case for his wares and an invitation to stop and buy. But the service store problem offers the designer a chance to employ a "World's Fair" technique in dramatizing the craftsman, the technician, and his product.

It is still to the small unit that this talent can be most successfully applied. As in the past, service is still sold in small doses to small groups of people. The old-fashioned tailor, cobbler, or blacksmith operated a little shop for nearby customers. Even today, though cities have grown and distance is annihilated by transportation, small units remain highly profitable, whether individually owned, or parts of large chains. Service stores may draw patrons from a wide area, now that shopping distance is measured in minutes, not miles. They have grown somewhat in size and have modernized production and advertising to meet contemporary demands.

The physical layouts and appearance of service stores vary widely, according to location, type of business, and type of customer traffic. Those in the central core of a large city must rely on pedestrian customers. High rents and land values force them into cramped quarters on secondary streets. The result is a pattern of small shops designed as open show cases, or chains of small pick-up stations for a central plant. The familiar shoe repair shop, displaying uniformed workmen, and the dry cleaner's chain station, are examples.

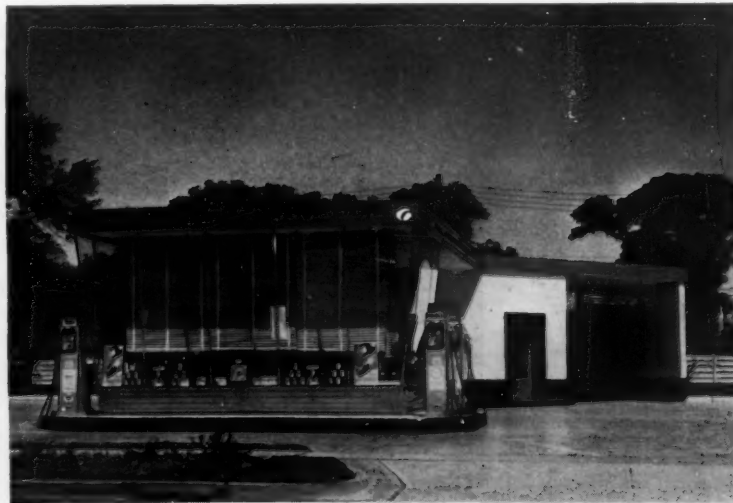
On the city's fringe, strategically located between the business core and the outer layer of suburban homes, are found the newest types of service stores—the "drive-ins." These offer the motorist easy parking, quick and painless curb service, and the benefit of lower prices obtained through the elimination of pick-up and delivery costs. Laundries, dry-cleaners, shoe-repair shops, florists, and many others have followed the auto service station in adapting themselves to their customer's living habits.

Such stores may foreshadow a city pattern of the future. Even now, the automobile has helped to spread the population of Los Angeles over 451 square miles, centering on business districts, and serviced by scattered drive-in shopping centers.

5



6





1, Barber Shop, Pennsylvania Station, New York City; Raymond Loewy, Designer: an attempt to invite interest by limiting the view of the shop's interior. But the shop is on a promenade where commuters throng past, so center glass panels, opaque in photo, have been replaced with transparent plate glass. 2, Rainbow Laundry, Nashville, Tenn.; Woolwine and Harwood, Architects: loudspeakers and bundle-boys on roller skates speed deliveries to parked customers. 3, Hedge's Tailors, New York City; Francis X. Gina, Architect. 4, Packard Sales and Pure Oil Service, Saginaw, Mich.: small area for new car sales, large area for repairs and service

2



St. Thomas

3



# PRINCIPLES CHANGE AS TYPE OF SERVICE VARIES

## PERSONAL SERVICES . . . . .

**A**LMOST ALL SERVICE STORES have the same basic plan. In its simplest form this consists of a glazed sales-and-work place, visible to the passer-by, in which customers are received and business activities carried on. Whatever offices, storage, supply, receiving, and shipping rooms are required adjoin this public space.

**Barbers.** Public space includes reception area, cashier and check rack, in addition to five to ten barber chairs and one to five manicure tables. Barbers' sinks and other equipment are built into walls. Chair bootblack service is sometimes expanded into a separate shoe-shine and hat-cleaning department.

**Beauticians.** Women customers demand more privacy than men, so clients' reception room, with control desk and cashier, acts as ante-room for six to eight service booths in smaller establishments—eight to twelve booths in larger ones.

**Tailors.** Clothing fabrics form the display background for the public space. One or more fitting rooms adjoin. A call desk can be used for routine repair jobs. The work room with its equipment can well be on view from both reception space and street. Elimination of pick-up and delivery costs might make the "drive-in" field attractive for this type of service store.

**Shoe repair.** In perhaps no other service store is human activity so important for display. One large room contains reception space and waiting booths, together with uniformed cobblers, stitchers, hat-cleaners, and bootblacks with their machines and equipment. An interesting drive-in chain on the west coast has eliminated the need of waiting booths—the customers stay in their cars.

**Reading service.** The rental library is one of our most popular service stores. Although book and stationery sales, etc., are usually featured, loan of books is the most popular department and carries the store. Best examples treat entire store as an open and colorful display.

## HOUSEHOLD SERVICES . . . . .

**Clock and watch repair.** The public is always interested in skilled workmanship, and will be drawn to a view of this tradesman's activities. Displays of clocks and watches for sale, together with customers' sales counters will complete an interesting sales room.

**Leather goods repair.** Display of leather goods adds richness and color to this work shop; the craftsman's activity provides human interest. Call space, displays and work room are readily combined in a single unit.

**Upholstery and furniture repair.** Fabrics of all sorts, upholstered furniture, and drapes, combined with the view of a neat work-room, give excellent show room opportunities in this class of store.

**Radio and electric appliance repair.** Machine-age gadgets need attention now and then. This activity can be combined with their display and sale. Again, a view of the workman at his task draws the crowd.

**Floral service.** See *Florists*, elsewhere in this issue.

## AUTO TRANSPORTATION SERVICE

**Auto sales and service, and parking garages** are treated more fully elsewhere in this study.





# WHETHER CUSTOMERS ARE PEDESTRIANS.....

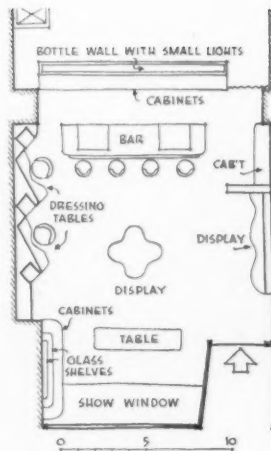


Gottsch



**OPTOMETRIST'S SHOP FOR DR. FELDSTEIN, JAMAICA, N. Y.; NATHAN R. GINSBURG, ARCHITECT.** Located on a busy retail shopping thoroughfare, this shop's small window and comfortable interior have proved the financial value of displaying technical products and professional practice.

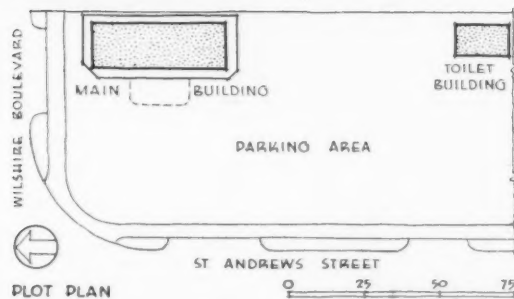
**GOUBAUD BEAUTY BAR, NEW YORK CITY; KARPLUS AND SPELMAN, DESIGNERS.** Here too, though customers are pedestrians, emphasis is placed on technicians at work. The shop sells cosmetics and perfumes compounded to individual prescriptions; interior display centers on rows of bottles of colored liquids, highly illuminated. Customers sit at the bar while liquids are mixed to order. At left, dressing tables where customers participate in the process by trying out prescriptions—a further refinement not always available in other types of service establishments.



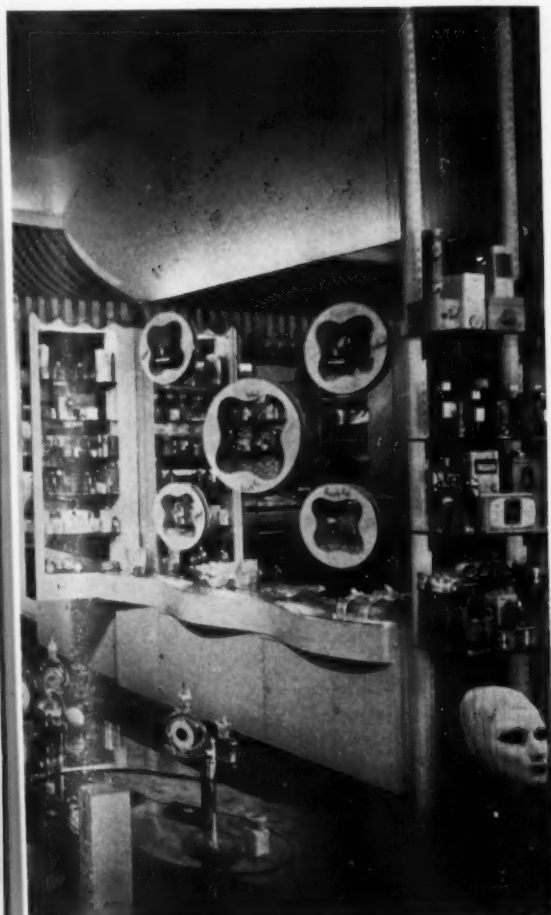
# .....OR MOTORISTS



Miles Berné

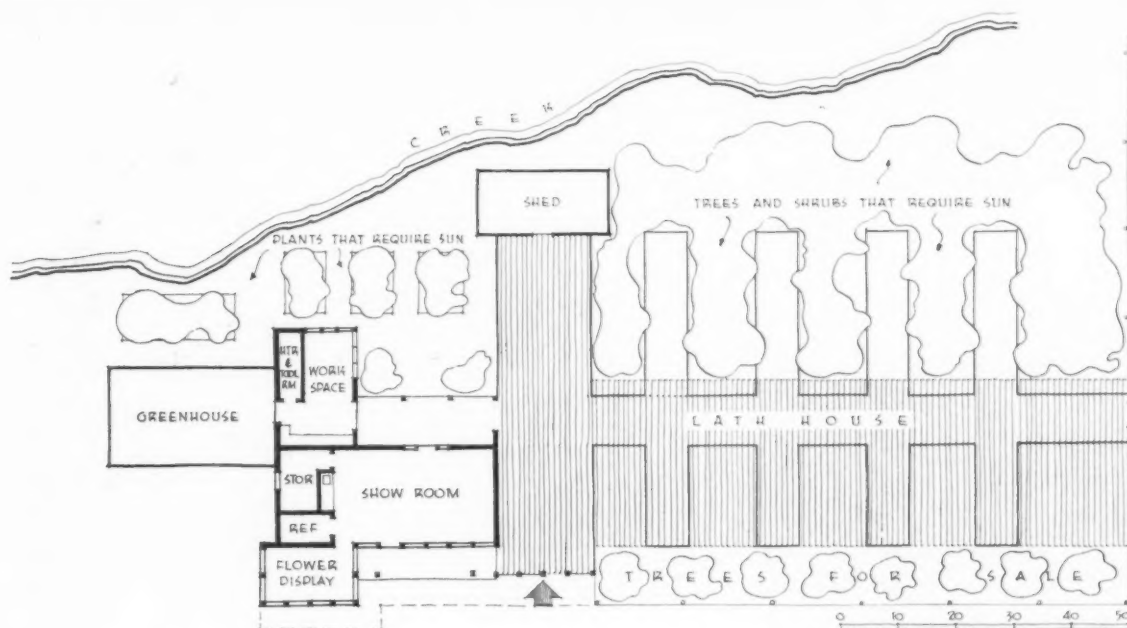


**ZINKE'S DRIVE-IN SHOE REPAIR, LOS ANGELES, CALIF.; HAROLD O. SEXSMITH, ARCHITECT.** But here the customer drives up, his shoes are taken inside, and he can see the whole process of repairing while he waits in his car. All four walls are glass; storage space is above the windows. A few chairs are provided for customers who prefer to wait inside. This type of shop has similar plot plan requirements to those of drive-in laundries, illustrated in other portions of this study.



Garrison

.....**SHOW THEM THE CRAFTSMAN  
AT WORK—IT'S GOOD ADVERTISING**



**SUNNYSIDE NURSERY, SAN ANSELMO, CALIF.; HERTZKA & KNOWLES, ARCHITECTS.**

The problem here was to design a simple, inexpensive structure which the owner could build with day labor. The building proper was limited in size and restricted to masonry construction by local codes. Site is on east side of main highway, close to the center of town, between a gas station and a drive-in market. There is very little foot traffic. In the rear is a small creek, heavily wooded, from which the nursery pumps its own water.

Requirements included a main show room, principally for winter use and central control; a cut flower display section which in summer houses garden tool displays; walk-in refrigerator; work space for potting; room for hot house heater and tools; generous storage space. Lath house was placed on south side of show room; its construction assures dispersion of sunlight to protect plants from summer sun; in winter this problem does not exist.



DETAIL of construction



# THE FLORIST-NURSERYMAN DISPLAYS HIS GARDENS

A FLOWER SHOP is always a display room, whether indoors or outdoors. The designer's problem is to create suitable backgrounds, and to solve selling space and refrigerator equipment problems. He must provide work rooms, receiving and shipping areas, and storage spaces.

The city florist makes the refrigerator for cut flowers an important element. Flower novelties—miniature gardens, plant racks, flower pots, etc., are side lines. The nurseryman-florist is able to combine display area with outdoor nurseries and greenhouses. Drive-in parking space helps to attract customers, to make shopping easier.

Sales are chiefly of growing plants, so most are made outdoors in lath house or from open beds—even the cash register is outdoors. For flexibility, the indoor sales space contains no built-in racks or counters. Windows are unsuitable for plants or flowers in summer, so garden implements, sales of which are then at peak, are displayed. Plot plan allows plenty of room for parking between building and highway. Construction, of fir stained deep reddish brown, glass, and warm gray lightweight cement blocks, is so distinctive that only a small sign is necessary—the structure is its own advertisement. The building was laid out to a 4-ft. module to simplify roof construction—a 5/8-in. plywood diaphragm laid in 4-by-8-ft. panels, topped with composition



LATH HOUSE integrates indoor and outdoor sales space; circulation is direct and simple

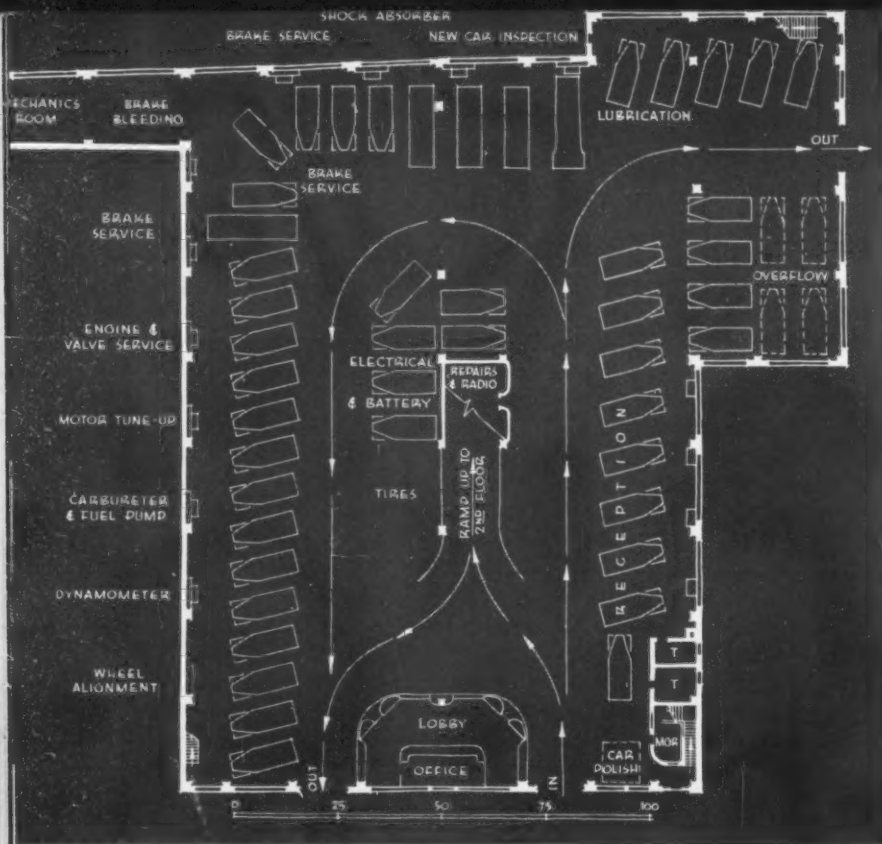


INTERIOR of show room



GARDEN: Left, lath house; center, main building; right, hot house

Photos by Roger Sturtevant



Courtesy "Automotive Merchandising"

## NEW AUTO

**REPAIR GARAGE, DAVIS-BUICK CO., PHILADELPHIA, PA.,** was laid out to eliminate bottlenecks, to facilitate customers' entrance and exit, to route cars directly to proper departments and simplify all service operations. Heavy repairs, body work and painting are done on the second floor. Each department has complete equipment for its own type of work, plus a moderate supply of necessary parts. This decreases time lost by mechanics.



Photos by Gottscho

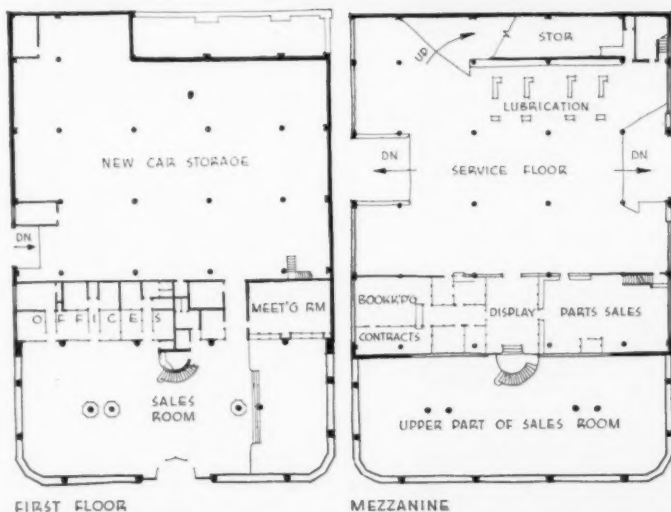
**RUPP CHEVROLET SALES AND SERVICE, LYNBROOK, N. Y.,** one of the most successful of its type in the East, has departments easily recognized in top photo: parts and repairs at left; lubrication, gas and similar services in center, new car sales at right. Used car area is out of picture at right.

# SALES INCREASE EMPHASIS ON REPAIR SERVICE

**A**UTO SALES-AND-SERVICE GARAGES—inherently drive-in establishments—have in recent years become primarily service and repair businesses. This change from the former emphasis on new car sales was due principally to competition, which drastically reduced profits on new cars. Service departments have to carry from 80 to over 100 per cent of the overhead—that is, show an independent profit. Hence this phase has to be well advertised and efficiently laid out.

First essential is location on a main thoroughfare, on a corner if possible. Next is attractive and efficient coordination of indoor and outdoor elements. Ample parking space, with easy drive-in access and gas-and-oil sales space, leads into departmentalized repair, washing and lubrication areas. New car display room, preferably glass-walled, is best located adjacent to both service waiting space and parking area, should cover on an average not more than 20 per cent of available land, and should be visible from street.

In the repair shop, each type of repair should be performed in its own area or booth: lubrication; motor-analysis; brake, wheel and axle repair, etc. A glazed wall between waiting space and shop permits customers to watch repair activity without getting in the way. Heavy repairs, painting, etc., may be performed on an upper floor; but one-story structures are preferred.



**INGOLD CHEVROLET SALES AND SERVICE, SAN FRANCISCO, CALIF.; JOHN EKIN DINWIDDIE, ARCHITECT.** This project has a downtown, sloping site, so service department is entered from upper level on side street, lower floor gains display space on a main street. Third floor houses heavy repairs, etc. Customer space on second floor has window overlooking new car salesroom. Construction is concrete, with widely spaced columns to allow easy manoeuvring.

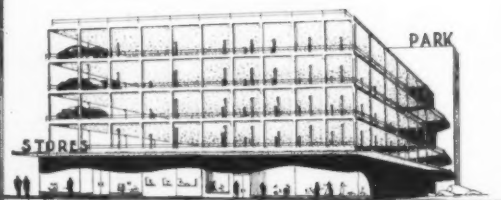




**B**IG-CITY SHOPPING DISTRICTS have heart trouble: more and more city inhabitants move to suburbs and become unwilling to patronize central shops or theatres without adequate parking facilities. Parking lots are at best temporary palliatives; parking garages have been hampered by excessive construction and land costs. Generally speaking, on a building cost of \$200-per-car-space, a parking garage can make money. On \$400 to \$1,000—the usual range—it cannot.

This leads to consideration of the wall-less building—a series of parking levels supported by columns, reached by ramps, without forced ventilating, heating or sprinkler systems, and with illumination cost minimized. Structure has to be “fire-proof,” which necessitates reinforced concrete or concrete-and-steel. Buildings should probably be small (100-300 car capacity), and located several blocks apart so customers will not have to walk more than 500 ft. to destinations.

Studies indicate that speed of operation, elimination of elevators and intercommunicating signal systems, and design for few attendants, are required to keep operating costs low. This entails design of ramps to enable customers to park their own cars. It is considered advisable to limit buildings to five stories, and land coverage to 15,000 sq. ft. For additional revenue, street level can be designed for retail shops.



## PARKING GARAGES

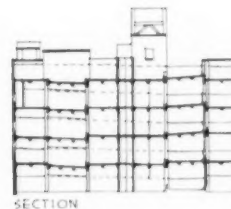


Dooner

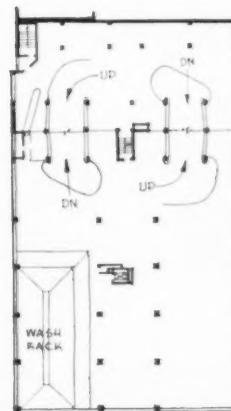


Stoller

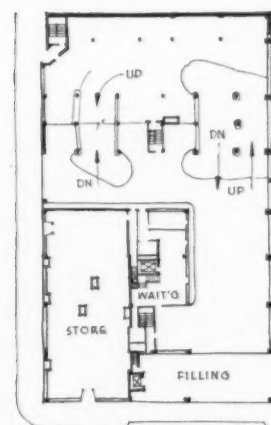
**PSF PARKING GARAGE, PHILADELPHIA, PA.; HOWE and LESCAZE, ARCHITECTS.** This garage, with shops on the first floor, almost achieves the “open” construction suggested above.



SECTION



THIRD FLOOR



FIRST FLOOR

# SHOW WINDOW LIGHTING EQUIPMENT

ARCHITECTURAL RECORD  
TIME-SAVER  
STANDARDS

JULY 1941

Information on this sheet was prepared by Ronald Allwork from data furnished by Fred M. Wolff, Illuminating Engineer, and Morris Ketchum, Architect.

**General.** Selection of lighting equipment for any show window depends on (1) type of display, (2) size of window, (3) character of merchandise, and (4) location of store. Displays involving quantities of miscellaneous articles, such as occur in hardware, automobile accessory, or drug stores, require a general high intensity illumination. To accomplish this a strip light located above the window glass is usually sufficient. Wattage depends on type of merchandise and the competing illumination of the adjacent street area. In windows showing women's apparel and accessories, small strip lights may serve for general illumination with fresnel lens spotlights (of 50 watts) employed for highlighting. Miniature jewelry store windows generally require no more than three or four small 100-watt spotlights with possible addition of a fluorescent strip for background lighting. In all types of displays side and back lighting may be used to advantage.

**Location of equipment** varies; provision for flexible arrangements is desirable.

1. At Top of Show Window equipment

is recessed in ceiling or supported on pipe parallel to glass across entire window a few inches below ceiling line by means of yokes and clamps.

2. At Either Side of Show Window equipment is fastened to vertical pipes. These are flanged to floor and ceiling as close to front window and side walls as possible—leaving space for unit clamps.

3. At Floor in Front of Show Window, a footlight trough may be large enough to conceal a striplight, small spotlights. Equipment thus installed is useful for dramatic accent or general lighting.

4. Behind background, lighting is often achieved by equipment mounted on stands or vertical pipes.

5. Visible fixtures of decorative design are suspended from ceiling or mounted on floor. Types are available for both spot and floodlighting, permit units to be placed in ideal positions.

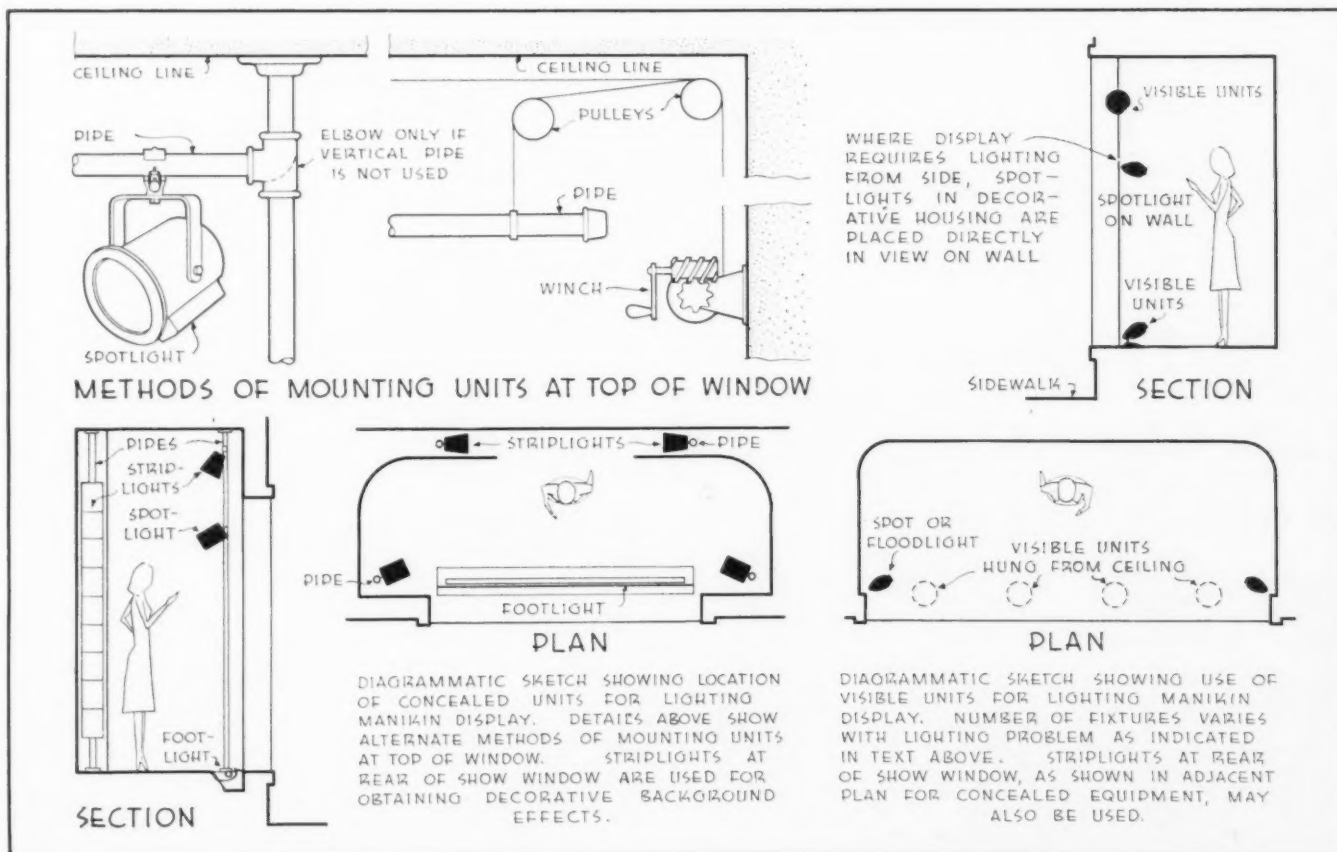
**Structural requirements.** Lighting units should be masked unless decorative. Where design of show window does not provide for this concealment, horizontal valances and vertical screens may be used but are not preferred. Where it is desired to avoid use of valances, equipment may be recessed in ceiling with flush lens equipment or louvres, etc., to conceal the lamps. Where troughs are provided for footlights, equipment must be checked care-

fully for size so that both trough and covers are sufficiently large to completely conceal lights. Use of visible, decorative fixtures obviates need for masking and frees entire window area for display.

**Outlets, wiring and control.** Except where permanently built-in equipment is used, units should not be wired in solidly. Convenience outlets of at least 10 amp.-125 V. capacity, or 15 amp.-250 V. stage connectors, are recommended. Local regulations sometimes require armor-clad leads from lighting units with 3-pole grounded connectors. If outlets are in ceiling, twistlock connectors should be used.

Number of outlets and capacities are determined by equipment selected. Always provide capacity for future expansion, new equipment, and possible increases in wattage. Each window or group of windows should have a distribution panel with a switch for each individual circuit.

Dimmers may be used, but are not generally recommended. Good practice is to employ a system of switches, which permits each circuit to be connected to either a "day" or a "night" feeder. Energizing either feeder from a master switch, manually or by time clock and relay, sets up lighting as required.



# SHOW WINDOW LIGHTING EQUIPMENT

**1. Incandescent Striplight:** Used above window glass for general illumination and behind screens for background lighting. Individual reflectors, 60-150 watt lamps. May have color roundels. Wired in one or more circuits.

**2. Fluorescent Striplight:** Used above window, in footlight trough for general lighting or for backgrounds. Generally built in open strips 2 ft. or more in length with 1 to 4 rows of lamps.

**3. Fresnel Lens Spotlight:** Used for dramatic soft edged accent lighting. Available from 75 to 1,000 watts. Most useful size for average display windows is 500 watts, with 6 in. diameter lens.

**4. Ellipsoidal Reflector Spotlight:** Used for dramatic displays, especially of arbitrary or unrealistic design. Projects an even, sharp-edged, high intensity beam of light. 500-watt size with medium spread lenses most frequently used, other sizes to 2,000 watts.

**5. Open Floodlight:** Used for either accenting small areas or general flooding. Cannot be focused. Glass or gelatine color available. Lamps up to 400 watts.

**6. Reflector lamps:** Used as accenting lights. Combine a concentrated filament and reflector in one bulb. Wide spread or concentrating type. Generally 150 watt or 300 watt sizes.

**7. Concentrating Projector Floodlight:** The only incandescent lighting equipment capable of producing dramatic highlights, in competition with sunlight. Beam cannot be matted or shaped. 500-1,500 watts.

**8. Fresnel Lens Spotlight in Decorative Housing:** Used to advantage where a visible source of light is required.

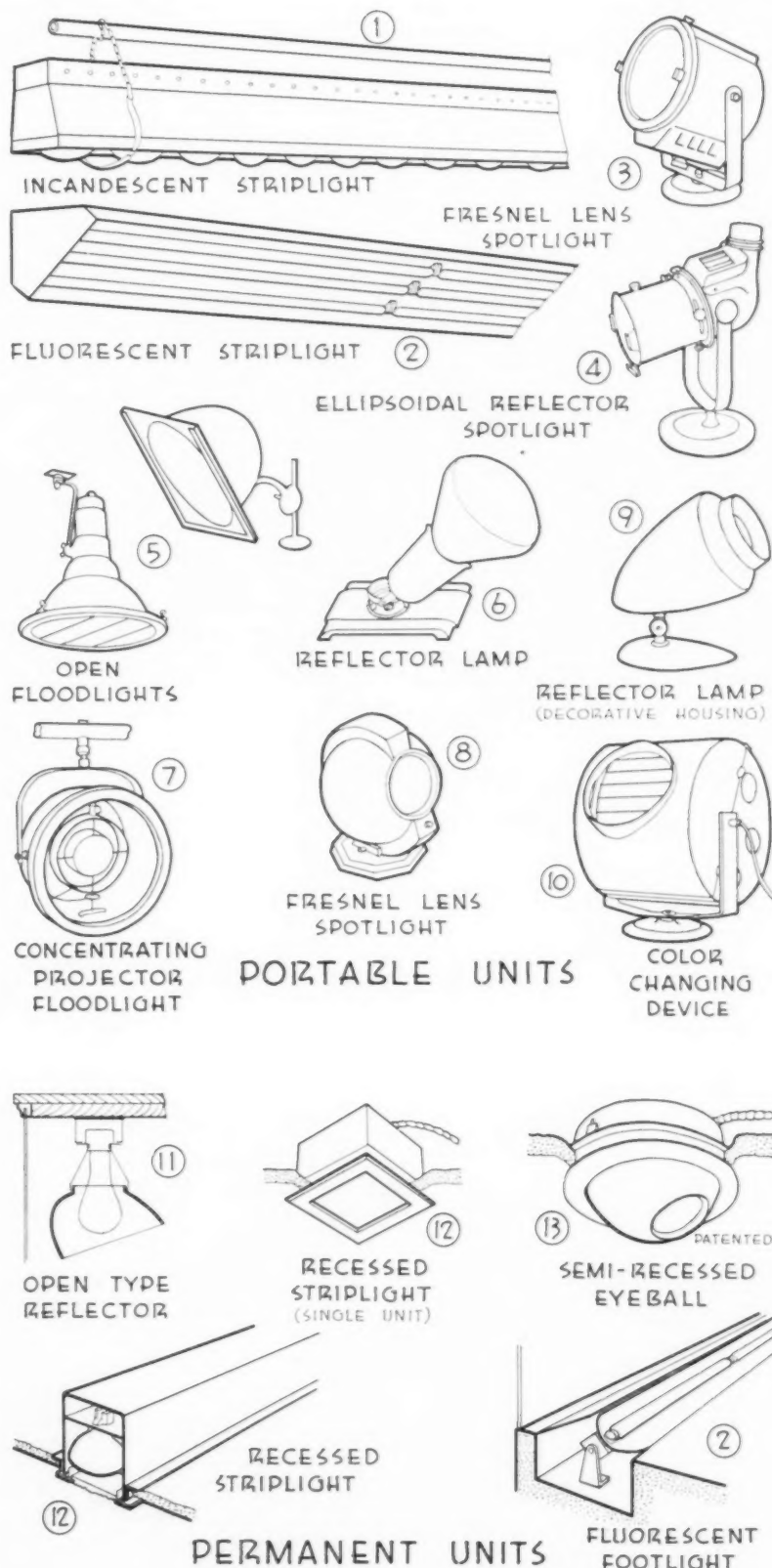
**9. Decorative housing for Reflector lamp:** Used where there is no space for concealing equipment.

**10. Color Changing Device:** Used for special effects, such as constantly changing colored shadows.

**11. Open Type Metal or Silvered Glass Reflectors:** Used only for general lighting from overhead. Available in a variety of distributions for deep or shallow windows and in sizes up to 500 watts. For built-in wireway or ceiling recess.

**12. Recessed Striplight:** Recommended only for permanent types of displays. Control of distribution obtained by reflectors and louvers or lenses.

**13. Semi Recessed Eye-ball:** Types available for spot or floodlighting. Combines the advantages of finished appearance with flexibility of direction and color control. The hemisphere swivels about so that light may be directed as desired. Either reflector lamp receptacles or fresnel lens spotlights are included.





*...no heat and humidity here—  
to dampen his skill, his speed—or his shirt*



When men and machines produce parts for airplane engines for the United States Army, both precision and production are paramount.

But . . . during the heat and humidity of the muggy months, discomfort dampens skill, speed, and shirts — and soaked shirts are important for, believe it or not, a single drop of sweat can cause the etching — and rejection — of a polished part! Then, to complete its ruinous role — temperature, in changing, affects the accuracy of the delicate gauges and micrometric machines used.

So . . . when engineers were completing plans for new mid-western and southern plants for manufacturing airplanes and airplane engines, they were conscious of the cost of heat and humidity — and avoided the toll of temperature changes by installing air conditioning — using Worthington-Carbondale Centrifugal Refrigeration Equipment.

The foregoing is fact — not fiction . . . nor is the fact that when you are faced with a problem involving air conditioning or refrigeration, you can profit by the broad scope of Worthington's experience, activity and products.

*These installations (names on request) have a total refrigerating capacity of more than 8000 tons, and include Worthington Centrifugal Compressors, direct-connected to high-speed motors through Worthington Step-Up Gears, and are complete with Worthington Horizontal Multi-Pass Condensers, Water Coolers, Liquid Sub-Coolers and all accessory equipment. These and other Worthington-Carbondale Units—in fact, the complete line—are described in detail in a fully-illustrated catalog which will be sent without cost or obligation. Simply ask for Bulletin W-A-1099-B27.*



## **WORTHINGTON** *Carbondale*

**AIR CONDITIONING AND REFRIGERATION EQUIPMENT**

Worthington Pump and Machinery Corporation • Carbondale Division • Harrison, New Jersey

*District Offices and Representatives in Principal Cities*



CA1-7A

**WORTHINGTON PRODUCTS for AIR CONDITIONING and REFRIGERATION**

REFRIGERATING SYSTEMS for COMMERCIAL, INDUSTRIAL, and AIR CONDITIONING APPLICATION using AMMONIA, FREON-11, FREON-12, PROPANE, BUTANE, METHYL CHLORIDE and CO<sub>2</sub> • REFINERY DEWAXING and ICE MANUFACTURING EQUIPMENT • RECIPROCATING and CENTRIFUGAL COMPRESSORS • STEAM JET VACUUM and AMMONIA ABSORPTION REFRIGERATING MACHINES • GENERAL PURPOSE COMPRESSORS • PUMPS • DIESEL and GAS ENGINES • STEAM CONDENSERS • FEEDWATER HEATERS • MOORE STEAM TURBINES • PRESSURE FILTERS • LIQUID METERS • MULTI-V-BELT DRIVES

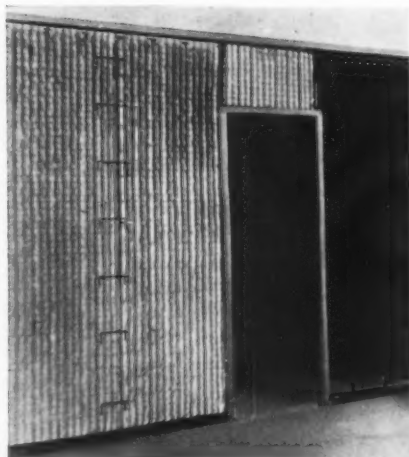


Fig. 1

## Prefabricated Building Partitions

PREFABRICATION appears in the form of building partitions in which all the materials except plastering supplies are designed, fabricated and shipped knocked down as a complete unit. For use in the construction of non-load bearing walls, the lightweight partition system is 2 in. thick and is made of two layers of steel reinforcement securely attached to each other, with an air space between. The core is reinforced on both sides with vertical galvanized steel V-shaped ribs. The outstanding advantage claimed is simplified erection. The sheets are self-supporting, requiring no studs, and are erected in units extending in one piece from floor to ceiling. U-shaped anchor clips of galvanized wire are supplied for securing adjacent core sheets. The construction is said to be sound-deadening and fire-resistant. It is recommended for apartment houses, hotels, office buildings, post offices, schools, hospitals and especially for low-cost housing projects. Reynolds Metals Company, Richmond, Va. (See fig. 1.)

## Control of Fluorescent Light

LIGHT CONTROL is brought to the fluorescent lamp by three new prismatic glass lenses. The first of these is described as producing normal "uniform spacing" lighting of horizontal

surfaces; the second is adapted to accent lighting or general illumination from great mounting heights; the third lends itself to lighting of vertical surfaces or permits wide spacing of vertical units. The lenses are being used in fixtures of a number of makes. Holophane Company, 342 Madison Ave., New York City. (See fig. 2.)



Fig. 2

## Protective Treatment for Fibre Board

THE DIFFERENCE between untreated and preservative-treated fibre board is illustrated by a test in which 3-ply specimens were half-buried in termite-infested soil for more than two years. The untreated specimens were badly decayed, while the treated boards were in as good condition as when installed. The treatment which was applied to the boards used in this test can be applied during manufacture, and some producers of fibre insulating board are equipped for the process and can furnish the treated products as specified by architect, builder or dealer. A. D. Chapman & Co., Inc., Chicago, Ill. (See fig. 3.)



Fig. 3

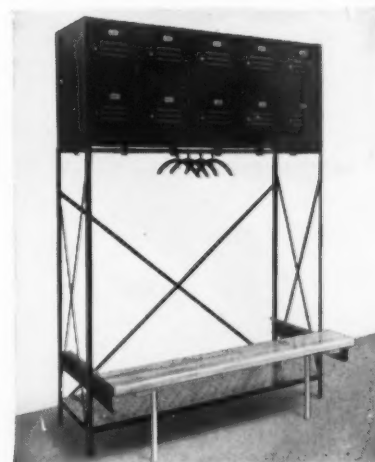


Fig. 4

## Steel Lockers Use Less Floor Space

WHERE FLOOR SPACE is limited in industrial or commercial buildings, steel locker units which are said to provide complete facilities for 10 persons in half the floor space ordinarily required may be considered. Each portable unit has an open coat space 56½ in. high, with coat hangers permanently attached to the rod. There is a perforated metal shoe rack, a wooden seat and 10 locked compartments, each of which is 12 in. wide, 18 in. deep and 12½ in. high. The overall size of each unit is 60 by 18 by 87 in. Penn Metal Corp. of Penna., 36 Oregon Ave., Philadelphia, Pa. (See fig. 4.)

## Clips Prevent Plaster Cracks

A CLIP SYSTEM designed to prevent plaster walls from cracking appears to have met with success in a large number of installations in homes and other buildings. The clips, concealed in the plaster, act as expansion and contraction joints between the lath and understructure. They suspend a solid plaster wall and ceiling inside the ever-moving wooden structure. One nail secures the flat clips to the joists and studs except in corners, where corner clips float free. Flat and corner clips are used for wood construction; channel clips are used when joists and studs are of channel

(Continued on page 108)

**INCREASE** office staff efficiency  
**DECREASE** building maintenance cost  
**WITH THE SAME FLOOR SPECIFICATION!**

In modern office buildings every detail of equipment must be chosen with an eye to work-efficiency. *Nairn Linoleum* is the ideal floor-specification to achieve this end. Its *quietizing* qualities reduce foot-clatter to a minimum, helping the staff to concentrate on their work! Its long-lasting *resilience* also lessens foot-fatigue.

Nairn Linoleum is ideal too from an economy standpoint. Moderate in first cost, this modern inlaid linoleum reduces maintenance to the trifling expense of cleaning and occasional waxing.

The use of Nairn Linoleum in a great many government buildings, both in Washington and throughout the country, is a striking endorsement of its ability to "take it"! Nairn not only meets the stringent Federal specifications for linoleum, but *exceeds* them in many of the required tests!

For office corridors, general offices, board rooms and private offices alike, you'll find Nairn a trouble-free floor specification! When installed by Authorized Contractors, Nairn Linoleum is fully guaranteed—both materials and workmanship! Write for free, 16-page booklet today.

CONGOLEUM-NAIRN INC., KEARNY, N. J.

**NAIRN**

Reg. U. S. Pat. Off.

**Linoleum Floors and Walls**





# ARCHITECTURE

★ Clarity is so obvious a fundamental of advertising that it is more often assumed than expounded. Sometimes it is even forgotten in the zeal to create something "different," so that the result, instead of pleasing, serves only to confuse the reader.

An example of such a failure was recently received by this department from a contributor who had written across the face of the advertisement "What is it?" Certainly at first glance it was difficult to tell, and even after according it more time than is usually devoted to the average advertising page it was still a question. The layout and appeal were good, but nowhere did it give prominent evidence of what the product actually was! And because the use of a trade name constituted the only mention of the product, and the nature of the caption was so general, the advertisement might apply equally well to insulating material, heating systems or electrical controls. What the reader really needed to know was contained in an unimportant line at the bottom of the page.

A clever phrase or tricky name always has a desirable and descriptive connotation to those who are familiar with the product, but the uninitiated reader may not get the point. A trade name undoubtedly creates an "individuality" for a product, but unless it is qualified by an accompanying description, the net result will be a trade mark registered—but not in the mind of the reader. Advertising is only good when what it has to say is clear.

—RONALD ALLWORK

## HERE'S HOW ARCHITECTS

1. How do you as an architect feel about "Case History" advertisements which tell how some particular architectural problem was solved through the use of the product advertised?
2. Do you like to see detail drawings showing some specific application included as part of an advertisement of a product?

### SAMUEL ELDON HOMSEY, RA, AIA

WE FEEL, first, that there is a decided advantage to "Case History" since it is the nearest solution to the "clinic" of practice so sorely needed in our profession. A clinic is needed for each climate in our country.

We like to see detail drawings showing some specific application included as part of an advertisement of a product, especially in case of new products. These should, however, be checked and rechecked for accuracy.

### WILLIAM L. STEELE, FAIA

MAY I SAY that Architecture met Advertising many years ago and has been struggling with it ever since.

The only way Advertising can help Architecture is by being truthful, and I do not mean "maybe."

Answering the two questions together:

It might be argued that the circulation of inside information as to what architect A does for client B, and the unrestricted issuance of details which A was intelligent enough to devise for B might be a little too helpful to the underprivileged competitors. It might also be misleading. A thoroughly well studied detail is worked out for a definite solution of

# MEETS ADVERTISING

## ANSWERED LAST MONTH'S QUESTIONS

a particular problem, and seldom, if ever, can be lifted from its proper place in an organized scheme. Basic or typical details, which illustrate a proper use of material or product, are usually helpful, but grief lies in wait for the architect who slavishly copies them.

I believe there could be no objection to using the name or names of architects as references in connection with an ad. The interested reader may then write for advice to the architect mentioned. He might even be willing to pay for it.

### PAUL HYDE HARBACH, AIA

I DON'T CARE how an advertisement is written as long as it gives the information desired and avoids the approach implying that one has had breath if he doesn't use the product—and is somehow shameful in his conduct of affairs! All advertisements that tell the "mostest bestest" are *IT*—whether they are case histories, measured drawings, details or just plain print.

### CHARLES NAGEL, JR., AIA

OUR ANSWER to the first question regarding "Case History" advertisements is that we should like very much to see advertising take this form. Our answer to the second question is that detailed drawings showing special applications of a product are always of great interest.

### HOWARD RAYMOND WEEKS, AIA

AS TO the first question, we think this to be the best possible means of advertising—an excellent way of giving architects the type of information they want and need.

We're dubious about the value of second approach to the problem of advertising. In most instances we can't use the detail drawings as ref-

erence material because they're not indexed and therefore usually can't be found when we want them.

### JOHN GUNTHER, AIA

IN MY OPINION "Case History" advertisements are always interesting and informative—and occasionally very useful. As to your second question regarding detail drawings, I certainly like to see them included.

### JOSEPH E. FRONCZAK, AIA

I HEARTILY ENDORSE the type of advertising suggested in the first question and further believe that the architectural profession would benefit by the more general use of "Case Histories" advertisements. My answer to the second question is "yes."

### FLOYD O. WOLFENBARGER, AIA

I BELIEVE that the use of "Case History" advertisements for building materials could be of great interest.

The increasing use of detailed drawings as part of an advertisement for a product is usually a very desirable complement.

### ROGER ALLEN, AIA

PERSONALLY, I have never quite figured out just how a beautiful photograph of the exterior of the new Science Building at West Bagbyville Sub Normal acted as a stimulus to the sales of the Little Dandy Coal Stoker, said L.D.C.S. not being visible in the photograph. Probably this is because I am not an expert advertising man, an expert advertising man apparently being one who is much too smart to see to it that mailing pieces sent to architects carry the AIA file number and are the correct filing size.

No, I do not care very deeply about "Case Histories" of how some architectural problem is solved.

Detail drawings, by all means.

### CHARLES FREDERICK BOWERS, AIA

ARCHITECTS are always on the lookout for new ways of solving problems. Case histories should be beneficial. I am for them—and I also favor the use of detail drawings to show a specific application of the product advertised.



Courtesy of General Electric Company



WITH?

or

WITHOUT?

Do you prefer to see illustrations of interiors used in advertising shown with or without models? Tell us—and read what others think about it in the August issue



EVEN THOUGH THE WOOD FLOORS  
IN OUR SCHOOL GET SEVERE USAGE  
THEY ARE ABLE TO TAKE IT AND  
CONTINUE TO LOOK WELL, THANKS  
TO FINISHING WITH **LIGNOPHOL**

WHEN WE THINK OF WOOD FLOORS

Still attractive, smooth, tough—a frequent report after young feet have tramped the surface of a LIGNOPHOL finished wood floor for years.

The upkeep of a school wood floor is successfully solved when LIGNOPHOL is applied. LIGNOPHOL prepares gym floors for safer play—hardens hall floors for marching feet—keeps classroom floors more attractive. It penetrates the wood, depositing toughening resins, life-imparting oils, which resist molds, fungi, and wood-destroying organisms.

LIGNOPHOL protects economically—easily! Unlike shellac and varnish, with LIGNOPHOL there's nothing to wear off or to be scratched! Warping, dry rot, cracking, splintering, pitting, scuffing and burn marks from rubber soles have often been checked or eliminated by the protective action of LIGNOPHOL. It primes school floors for greater service! It brings out the natural beauty of their grains and colorings.

See reproduction of various woods in natural colors in Sweet's Catalog, page 17/40.

### LIGNOPHOL

The **ONE** application  
wood finish

### LIGNOPHOL

Preserves and brings  
out the natural beauty  
of the wood

### LIGNOPHOL

Leaves nothing  
to wear off

Dept. R-7

**L. SONNEBORN SONS, Inc.**

88 LEXINGTON AVE.

NEW YORK CITY

A GRACIOUS HOST  
FROM COAST TO COAST

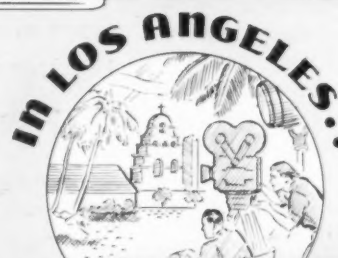


The Gotham



The Drake

The Blackstone



The Town House



Belleview Biltmore

A. S. KIRKEBY, Managing Director

**KIRKEBY  
HOTELS**



**THE WETTER... THE BETTER!**



Water doesn't trouble a seal—or a Barrett Specification Roof! Let the rain come down, year in—year out. The coal-tar pitch in a Barrett Roof is actually preserved by water.

The gravel or slag wearing surface adds still further protection—against mechanical damage, fire, hail and the harmful actinic rays of the sun. Adverse conditions which show up the weaknesses of inferior roofs merely demon-

strate the superior weather protection of Barrett Roofs.

Barrett Specification Roofs are applied only by Barrett Approved Roofers in strict adherence to time-tested Barrett Specifications. Bonded against repair and maintenance expense for periods up to 20 years, they regularly outlast the period of their bonds by decades. For the utmost in roof performance specify . . . and stick to . . . Barrett.

**THE BARRETT COMPANY, 40 RECTOR STREET, NEW YORK, N. Y.**

2800 So. Sacramento Avenue, Chicago, Illinois    Birmingham, Alabama

ONE OF AMERICA'S GREAT BASIC BUSINESSES

\*Trademark of The Barrett Co., Reg. U. S. Pat. Off.



## NEWS OF MATERIALS AND EQUIPMENT

(Continued from page 102)

steel. U. S. Machine Corp., Lebanon, Ind.

A clip system for securing gypsum lath to the studding to produce crack-resisting floating plastered walls and ceiling is also announced

by a second manufacturer. Simplicity is said to be the outstanding feature of this system. Three forms of clips are necessary in constructing walls and ceilings, with open frontal nailing of the clips to the studs. Celotex Corp., 919 N. Michigan, Chicago, Ill.



Fig. 5

### Blinds Keep Out Sun or Rain

A LINE of all-metal venetian blinds, crank-adjusted, are especially adaptable for use on a sun porch. The slats can be closed so completely, it is claimed, that they offer full protection against driving rain. Manufacturers are said to be studying the possibility of using these jalousies as a means of blacking out plants. The slats will admit natural light during the day and can be closed at night to shut in light and give protection against flying debris. Galvanized metal with baked enamel finish in 12 colors. F. C. Russell Company, Cleveland, O. (See fig. 5.)

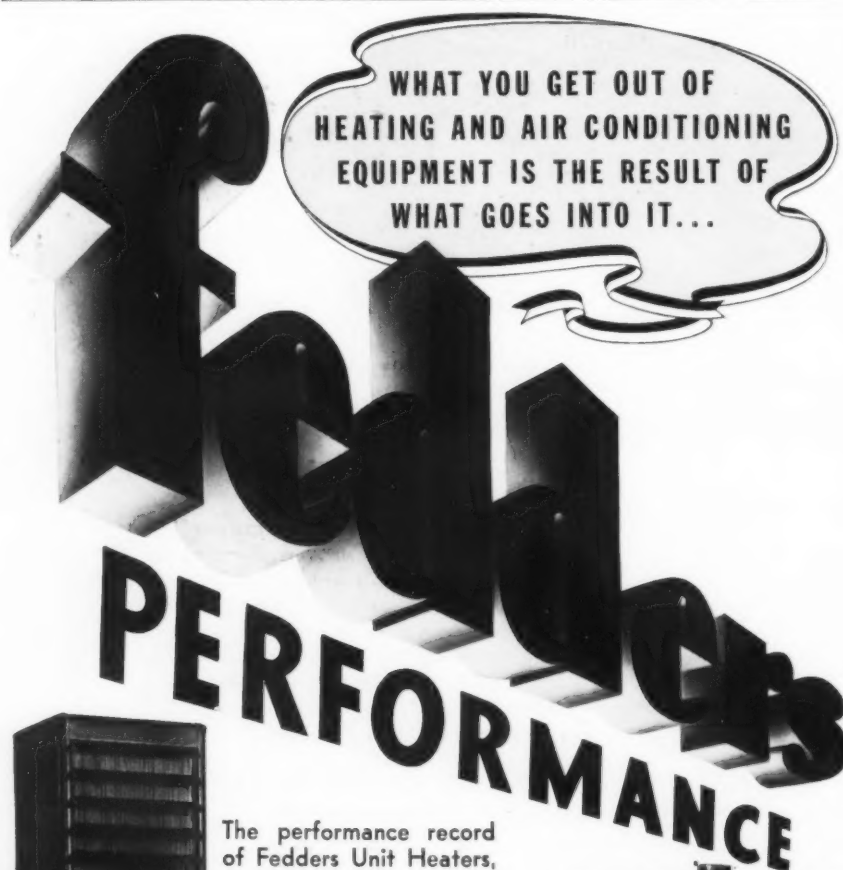
### Gas Boilers Have Concealed Stabilizer

APPEARANCE has been improved through a complete line of gas-fired boilers by concealing the draft stabilizer under the top of the boiler jacket. All sizes of this line are identical in design and appearance. Other features include gas-actuated fuel and boiler controls, tapered flueways with staggered ribs. National Radiator Company, Johnstown, Pa.

### All-Purpose Fluorescent Fixture

AN "ALL-PURPOSE" fluorescent fixture is announced. For household or commercial use, its shield is designed to hide the bulbs, kill glare and distribute the light evenly. Uses two 20-watt 24-in. T-12 fluorescent bulbs, and comes in ivory, white enamel and bronze finishes, wired and ready to hang. Mitchell Manufacturing Co., Chicago, Ill.

(Continued on page 112)



The performance record of Fedders Unit Heaters, Heating and Cooling Coils, and other associated products is the result of their field-proven engineering. What you get out of heating and air-conditioning equipment is the result of what goes into it. Modern design and highest quality materials which have won the respect of the profession include strong, rigid casings . . . full floating protection against overall expansion between individual tubes . . . permanently bonded fins and tubes . . . large plenum type headers.

Fedders equipment is built in a complete range of well graduated sizes. Progressive manufacturing methods assure prompt deliveries under today's conditions. Write for Catalogs.

**FEDDERS MANUFACTURING CO., Inc.**

*Air Conditioning Division*

93 TONAWANDA STREET, BUFFALO, N. Y.  
REPRESENTATIVES IN ALL PRINCIPAL CITIES



# How to show your clients that

**Extra windows  
don't mean  
larger fuel bills!**



● Talk extra "sunbeams" to a client, and he agrees with you! He knows his family's health will benefit from the light and air extra windows bring! He knows his home will be more cheerful and attractive—inside and out. But when he asks about fuel bills—what's the answer?

Here's where you tell him about Silentite, the "insulated" window. How it has built-in, metal-to-metal weather-stripping to keep heat in—to help save as much as 25% on fuel bills. And tell him, too, about the economies made in installing Silentite.

Installation costs are cut with pre-fit Silentite and Curtis Mitertite trim as much as  $\frac{2}{3}$ ! Narrow Silentite mullions admit more light and air! And Curtis Miter-tite trim adds to room beauty!

The Curtis Silentite wood window is "trouble-free"! It won't jam, stick or rattle. It has lifetime springs to replace weights, pulleys, and cords. Its sash glides smoothly in metal channels.

To help you prove these known Silentite facts to skeptic clients, Curtis has developed a handy "Economy Calculator"—a quick, easy way to figure fuel savings with all types of wood windows, storm sash savings, and installation costs. Send for yours. It's free! We'll also send you the story of the whole Silentite wood window family. Mail your coupon today. If you live in Canada, write to W. C. Edwards & Co., Ltd., 991 Somerset St., West, Ottawa, Canada.

**CURTIS WOODWORK IS SOLD BY RELIABLE DEALERS EVERYWHERE**

*When in New York, visit the Curtis Woodwork display at Architects' Samples Corporation, 101 Park Avenue.*



**THERE'S ONLY ONE SILENTITE AND ONLY CURTIS MAKES IT**  
Its patented features aren't available in any other window

**CURTIS COMPANIES SERVICE BUREAU**  
Dept. AR-7 Curtis Bldg., Clinton, Iowa

Send me a Silentite "Economy Calculator" and tell me more about Silentite "Insulated" windows.

Name

Address

City  State



## NEWS OF MATERIALS AND EQUIPMENT

(Continued from page 108)

### Automatic Humidity in Winter

A SOLUTION to the ever present problem of dry air in the heated house is offered in the form of a device which may be installed on the heating system beneath a radiator. Con-

nected with the water line (or, in large buildings and apartment houses, using radiator condensate) hot copper pipes are surrounded by a film of water which is evaporated into the warm air. Additional water is automatically admitted as required. Heat for evaporation is sup-

plied by a special heater inserted in the firebox of boiler or furnace and connected by copper tubing. This device is said to be capable of evaporating 5 to 8 gallons of water per 24 hours, sufficient for an average 7-room house. W. A. Russell & Co., Bridgeport, Conn.

### New Sump Pump

FOR AUTOMATIC REMOVAL of seepage, overflow, drainage and floodwater from cellars, elevator pits and boiler pits, there is a new cellar pump for which a performance of 2200 gallons per hour at 2 ft. head and 1800 gals. per hour at 10 ft. head is claimed. Float adjustment can be made by turning a thumb screw, and a completely encased toggle switch and large copper hollow float are said to assure positive automatic operation. The motor is 1/4 h.p., 1725 R.P.M., induction type, heavy duty continuous operation. Eastern Engineering Co., 45 Fox St., New Haven, Conn.

### Low-Priced, Pre-Finished Wallboard

A PRE-FINISHED wallboard in the low-price range, just announced, is said to be characterized by a smooth soft finish. It may be cut to size and applied directly to old walls of plaster, insulation board and lath. Tests have shown the product to have color stability, durability, resistance to soaps, alkalis, mild acid and other common deteriorants. 18 colors, 3 patterns, 5 sizes. Marsh Wall Products, Inc., Dover, Ohio.

### Plastic T-Square

PLASTIC makes a new T-square which enables the draftsman to view the entire drawing without moving the T-square. The material is said to be proof against warping, bowing, chipping, cracking and splitting, and has no finish to wear off. Pins set into the head eliminate wobble and take up play. 7 sizes, 12 to 48 in. Engineering Sales Company, Sheboygan, Wis.

## THOROUGH STORE CLEANING IS A JOB



*for your  
Architect  
and Engineer*



BULLETIN No. 121-R describes Spencer Systems, shows a score of ways Spencer is used to save time and money in stores.



Don't wait until your building is built or remodeled. Don't expect your housekeeper to compete in cleanliness until you have installed cleaning equipment that is satisfactory to your architect and your engineer.

The Spencer Central Cleaning System has the necessary pulling power, flexibility, speed and stamina for your tremendous daily cleaning job.

Small store owners report 40% less cleaning time and twice as much dirt collected. Large stores are cleaned at the rate of 6000 sq. ft. per man per hour. In Wanamaker's, Philadelphia, and Macy's, New York, the Spencer System cleans nearly four million square feet of area every night.

Carpet life is increased, decorations and goods protected, less wax is required and even the mopping time is materially reduced.

Standards of cleanliness from the boiler room to the shipping room are automatically maintained, year after year.

Your Architect and your Engineer will recommend Spencer if you ask them.

181-B

**SPENCER** CENTRAL AND PORTABLE  
HARTFORD VACUUM CLEANING SYSTEMS

THE SPENCER TURBINE COMPANY, HARTFORD, CONN.

# An Important Milestone in AIR CONDITIONING...



(Above) The Air Conditioning System is so arranged that indoor temperature is automatically adjusted to conform with varying outdoor weather conditions. What's more, because the system is an integral part of the building, outlets blend harmoniously with the basic ceiling design.

(Right) Cooling for the entire 9 story building in addition to the basement is provided by this 400 ton Carrier Centrifugal Refrigerating Machine. Operated in conjunction with a large "cooling tower" located on the roof, water consumption is sharply reduced.

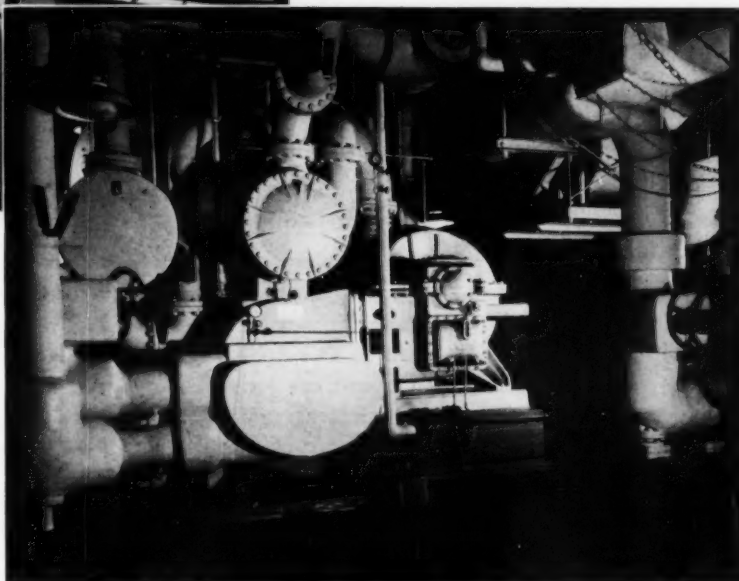
## Tiffany & Co.

Cross & Cross, Architects  
Jaros, Baum & Bolles, Consulting Engineers  
Baker Smith & Co.,  
Ventilation & Air Conditioning Contractors  
Turner & Co., General Contractors

### WORLD-WIDE EXPERIENCE

★ Hailed as an outstanding success in modern air conditioning, the Carrier Refrigeration System installed in Tiffany & Company's new Fifth Avenue building is the result of over 39 years previous exclusive experience in this field.

No matter what type of buildings you may now have on your boards, whether small homes in the \$5000 class or the largest buildings — Carrier's world-wide experience on over 100,000 installations is at your disposal. Your local Carrier dealer will be pleased to supply full details.



AIR CONDITIONING'S

*First Name*

**Carrier**

CARRIER CORPORATION

Desk G28

"Weather Makers to the World"  
Syracuse, N. Y.

Please send complete information on Carrier Air Conditioning.

Name.....

Address.....

City..... State.....

## TRENDS IN BRIEF

(Continued from page 24)

1/5 of the total circulated—and the air which is recirculated in a given space—the remaining 4/5 of the total.

Air for ventilation is cleaned, dehumidified and humidified in a central apparatus, and because it is small

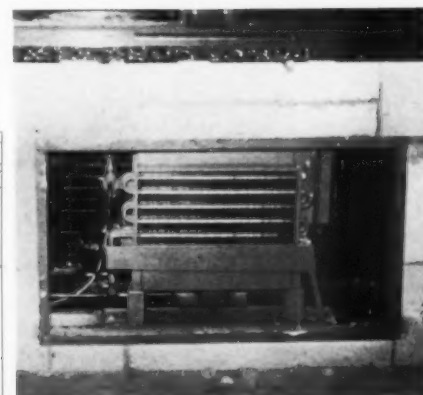
in quantity can be delivered in conduits usually not over 6½ in. diameter—minimum 3 in., maximum 8 in. Ventilating air passes at high velocities through induction valves, picks up air to be recirculated, passes over local heating or cooling coils regulated according to individual room



There's one and only one floor that thrives on abuse and improves with age—that's terrazzo. Once laid, years of foot traffic only mellow and enrich its beautiful colors. It's the floor that lasts the life of the building—a low cost material when you remember there are no refinishings, no expensive repairs, no replacements and cleaning costs are minimum. It's smart and sanitary, easy to walk on, inviting. Yes, "Terrazzo has everything" that your clients want in floors or wainscoting—beauty, thousands of color possibilities and almost any design or color combination your office can create. Certainly you will want to specify terrazzo at every opportunity. For latest, up-to-date information, consult your local terrazzo contractor or write—

### THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION

1420 New York Avenue, N. W., Dept. C • Washington, D. C.



Courtesy Carrier Corp.

Upper, typical conduit system corner risers; air conduits, water supplies and returns, for adjoining bays. Lower, local heating-cooling unit under window

requirements, and is finally delivered tailored to suit local needs.

Accomplishments claimed include the following:

1. Year-round humidity is uniform for all spaces.
2. Individual temperature control.
3. Desired room temperature is obtained by turning a single dial.
4. Room units do not collect odors (important in hotels, apartments).
5. There is no general recirculation from individual rooms back to apparatus.

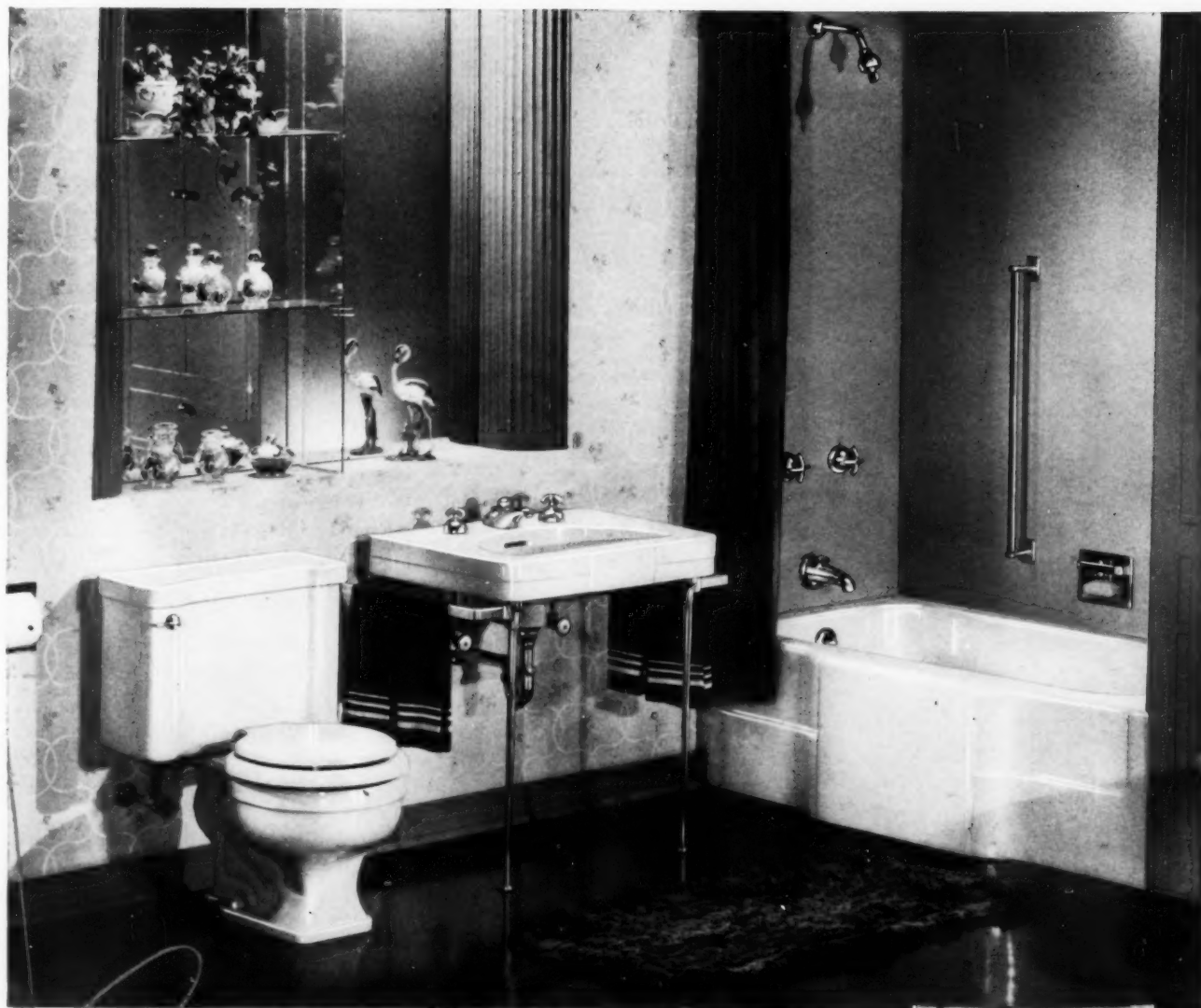
6. All parts, including conduit, are standardized for mass production, thus reducing engineering and installation costs.

7. The system saves from 85 to 95 per cent of rentable space required for duct systems.

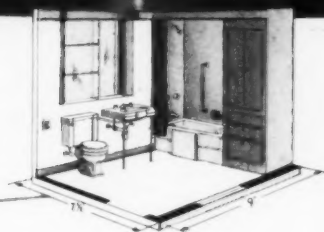
Its quietness, positive ventilation and suitability for new or remodeled office buildings, hotels, apartments, hospitals, plus the fact that, due to mass-manufacturing methods, installation costs can be pre-determined, combine to make the system attractive. There are, however, limitations. It is designed for peripheral rooms—hence, thin structures—and for buildings limited in height.

(Trends in Brief continued on page 116)





## Modern fixture styling helps your planning



**A**RCHITECTS are finding modern home builders demand glamor in bathrooms—at not too much cost.

How this can be achieved is suggested in this charming new bathroom which is economical in layout, yet extremely practical in serviceability. The illustration shows the *Berkley*, one of the new Crane fixture groups, styled to today's taste, designed to help you plan better—more attractive—more livable bathrooms.

You can see the *Berkley* group, as well as

other Crane fixtures, at your nearest Crane display room. Here you will also receive all the assistance you need in selecting plumbing and heating fixtures to fit any house you may be designing—in any price class.



# CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO  
VALVES • FITTINGS • PIPE • PLUMBING • HEATING • PUMPS

NATION-WIDE SERVICE THROUGH BRANCHES, WHOLESALERS, PLUMBING AND HEATING CONTRACTORS

## TRENDS IN BRIEF

(Continued from page 114)

### HOW MUCH MONEY DOES INSULATION SAVE?

SPONSORED jointly by the National Warm Air Heating and Air Conditioning Association and Illinois University's Engineering Experiment

Station, comparisons of computed and actual savings due to insulation have just been published.\* The Station's Research Residence, a typical frame house of 17,540 cu. ft., has been the scene of many heating experiments. Prior to 1939 it was uninsulated. In the summer of 1939

it was insulated with mineral wool batts where possible, otherwise with pellets blown into place. Some 95 sq. ft. of exterior wall (of a total of 2,164 sq. ft.) could not be insulated due to presence of ductwork, structural members, etc. Thus far the building resembles the average insulation job; but, since 6-in. studs frame the walls, insulation is 5 $\frac{5}{8}$  in. thick. Windows and exterior doors were equipped with tightly fitting storm sash. The heating plant remained as it was installed for the uninsulated house; this was equivalent to equipping the insulated residence with an oversized plant, and may have affected the results. Thus the following summary is applicable only to these conditions.

1. The installation of insulation resulted in an average saving of approximately 30 per cent in the actual fuel consumption, as compared with an estimated reduction in heat loss of 38.6 per cent.

2. The installation of storm sash on the insulated house resulted in an additional average saving of approximately 15 per cent in the actual fuel consumption as compared with an estimated reduction of 27.3 per cent.

3. The electrical inputs to the stoker and fan motors per day were each decreased by 25 to 30 per cent after the house was insulated, as compared with the results obtained in the uninsulated house.

4. The estimated reductions in heat losses indicated that a greater benefit was obtained from the insulation of the second and third stories than from that of the first. This was confirmed by the fact that temperatures on the second story were from 1 to 3 F higher, and those on the third story were from 5 to 7 F higher, after the installation of insulation and before final adjustment of the dampers, than they were in the uninsulated house.

5. The temperature differential from breathing level to floor was only slightly decreased by the application of insulation.

6. At an indoor-outdoor temperature difference of 80 F, the temperature of the inside surface of the exposed walls was increased approximately 11.0 F by the application of insulation, thus resulting in a material potential increase in comfort.

7. The application of insulation without changes in the heating system was equivalent to the use of an oversized furnace. In spite of this, on the whole no difficulties were encountered from overheating or from lack of uniform temperature distribution in the rooms and the results may be considered as representative of those arising from the usual practice of insulating the house without changing the heating plant.

\*"Effect of Insulation on Plant Performance in the Research Residence," by A. P. Kratz and S. Konzo, ASHVE Journal Section of Heating, Piping and Air Conditioning, May 1941; pp. 318-324.

## Skylights THAT INSULATE, TOO!



### THERMAG BLOCKS SAVE HEATING & COOLING COSTS . . . and provide even distribution of light

The sectional sketch above shows how "Thermag" semi-vacuum blocks with "Magnalite" diffusing design are used in skylights such as the one illustrated.

With this type of skylight (1) white, mellow daylight is diffused in four directions to the entire room; (2) thus the skylight area is kept to a minimum; (3) two-thirds to three-fourths of the solar heat, by test, is kept out, as compared to plain window glass; (4) tem-

peratures created by heating and air-conditioning are more easily maintained; (5) the chance of condensation underneath is virtually ruled out; and (6) the blocks, with their reinforced concrete grid, present a soffit quite in harmony with modern ideas of design.

Further details in Sweet's; or your inquiry addressed to 2139 West Fulton Street, Chicago, will be welcome and have our prompt attention.

### Light Up—the AMERICAN Way!



**AMERICAN** *3way-Luxfer* **PRISM CO.**  
CHICAGO NEW YORK